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GEOGRAPHY, RESOURCES & INDUSTRIES

February, 1947

EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

November, 1945-1946

SOURCE AND DISPOSAL OF ENERGY—MONTH OF NOVEMBER

	1946	1945	%
GENERATION* (Net)			
By Fuel Burning Plants	13,680,115,000	11,026,182,000	+24.1
By Water Power Plants	6,273,845,000	6,332,140,000	− 0.9
Total Generation	**19,953,960,000**	**17,358,322,000**	**+15.0**
Add—Net Imports Over International Boundaries	87,171,000	157,628,000	−44.7
Less—Company Use	129,436,000	128,006,000	+ 1.1
Less—Energy Used by Producer	374,344,000	86,133,000	.....
Net Energy for Distribution	**19,537,351,000**	**17,301,811,000**	**+12.9**
Losses and Unaccounted for	2,603,862,000	2,393,442,000	+ 8.8
Sales to Ultimate Customers	**16,933,489,000**	**14,908,369,000**	**+13.6**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of November 30th			
Residential or Domestic	29,650,918	28,036,606	+ 5.8
Rural (Distinct Rural Rates)	1,365,250	1,224,790	+11.5
Commercial or Industrial:			
Small Light and Power	4,677,325	4,373,227	+ 7.0
Large Light and Power	174,604	163,037	
Other Customers	121,010	118,999	+ 1.7
Total Ultimate Customers	**35,989,107**	**33,916,659**	**+ 6.1**
KILOWATTHOUR SALES—During Month of November			
Residential or Domestic	3,413,511,000	3,025,637,000	+12.8
Rural (Distinct Rural Rates)	327,523,000	257,833,000	+27.0
Commercial or Industrial:			
Small Light and Power	2,943,999,000	2,565,569,000	+14.8
Large Light and Power	8,907,819,000	7,656,912,000	+16.3
Street and Highway Lighting	221,952,000	209,205,000	+ 6.1
Other Public Authorities	460,186,000	535,439,000	−14.1
Railways and Railroads:			
Street and Interurban Railways	386,934,000	383,096,000	+ 1.0
Electrified Steam Railroads	222,323,000	224,918,000	− 1.2
Interdepartmental	49,242,000	49,760,000	− 1.0
Total to Ultimate Customers	**16,933,489,000**	**14,908,369,000**	**+13.6**
Revenue from Ultimate Customers	**$300,489,300**	**$276,718,400**	**+ 8.6**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended November 30th			
Kilowatthours per Customer	1,319	1,218	+ 8.3
Average Annual Bill	$42 74	$41.66	+ 2.6
Revenue per Kilowatthour	3.24¢	3.42¢	− 5.3

(*) By courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 15 FEBRUARY, 1947 No. 2

Agricultural Development Clinic Emphasizes Promotion of Farmers' Welfare

THE FIRST Agricultural Development Clinic sponsored by the Agricultural Development Committee of the Farm Section, Edison Electric Institute, attracted an audience of 134 representatives of 57 power companies, operating in 33 states, to Fairmont, West Virginia, on January 24-25—an attendance indicative of the value of agricultural development to the electric power company, and a proof of the growing interest in this field.

Opening the two-day program, E. C. Easter, of the Alabama Power Company, and Chairman of the EEI Farm Section, explained the reasons for the organization of the Agricultural Development Committee. "There is a need for programs of this type in all rural areas served by power companies," he declared, "and companies which have already put such programs into operation are convinced of the soundness of the idea.

"The activity pays for itself," Mr. Easter explained, "both through directly increasing farm income, of which the power company will receive an average 1.2 percent, and in promoting friendly relations. It is in the company's best interest to protect its large investment in rural lines through improving the economic status of farm customers.

"Since no two territories have the same agricultural problems, no specific program on a national scale is possible. Each area should have its own activities, which will be based upon the particular resources and needs of that area," Mr. Easter continued. "The success of a program depends upon having highly qualified personnel available, a policy of working through the established agricultural agencies, and keeping the agricultural development efforts separated from the company's commercial interests.

"The EEI Agricultural Development Committee will act as a clearing house for information on the subject, and will pass on ideas that have been proven successful in the field to the industry," Mr. Easter said. Other committee projects will be announced within the near future.

Why the electric company serving a rural area should seriously consider an agricultural development program was outlined by Roy W. Godley, Rural Service Manager of EEI. Pointing out that "in most rural areas today, the power company serving that section has more money invested in the area than any other single agency," Mr. Godley explained that the return to the company must come from the use of the service it sells to the farm people served. "They can and will buy our service in proportion to their economic level, or general prosperity," Mr. Godley said.

"A power com-

EEI Convention Objectives to Guide Program Makers

Give—Inspire—Discuss—Inform—Explore—Promote. These are the key words in the objectives of the Fifteenth Annual Convention of the Edison Electric Institute as drawn up by the Program Committee for its guidance in arranging the convention program.

In full, the objectives are:

- **To give industry people inspiration, hope and confidence**
- **To inspire public confidence in our industry**
- **To point-up know-how of gaining employee and public knowledge of our business**
- **To inform us of what's new in our industry**
- **To explore pitfalls, problems and potentialities of the future**
- **To promote free enterprise**

P. H. Powers, West Penn Power Company, is Chairman of the Program Committee. Other members are G. M. Gadsby, Utah Power and Light Company, and W. E. Mitchell, Georgia Power Company.

The Convention will be held at Atlantic City, June 2-5. Registration and Committee Meetings will take place on Monday, June 2. Morning and afternoon business sessions will be held on Tuesday and Wednesday, June 3 and 4, and on the morning of Thursday, June 5. A luncheon meeting on June 5 will close the Convention. Details of the program and entertainment to be arranged will be published in later issues of the BULLETIN.

A circular containing information of hotels in Atlantic City, and the official reservation blank, is available at the Institute and will be sent upon request. Hotel reservations should be made as promptly as possible, in order to secure preferred accommodations.

pany's detached relationship from state and federal groups makes possible its enlisting the support of business and professional leaders for agricultural development programs in ways that the established governmental agricultural agencies cannot do," Mr. Godley continued. "Other methods by which the company can supplement the work of these agencies include providing the services of specialists, for assistance in specific programs; engineering guidance in community planning problems; and the use of the power company's advertising media to present facts that will contribute to agricultural development. The electric company can effectively supplement the efforts of all agencies working with farm people, and can help to secure a proper diversification of the area," the speaker declared.

The agricultural development program of each power company should be hand-tailored to the individual needs of its territory, for best results," Mr. Godley said. "Careful study and analysis are required before any such program can be launched, and this work should preferably be done in cooperation with agricultural leaders and agencies."

Agricultural Development in Arkansas

Farm marketing, soil conservation clinics, and a farming contest entitled "Plant to Prosper" are three specific agricultural development projects being carried on by the Arkansas Power & Light Company, according to Ross Mauny, who described the Company's program at the Clinic. "Company representatives supply technical assistance to help make these projects successful, and encourage agricultural workers to prepare and carry out their own programs," he said.

"Among the channels through which the company works to improve farming and living standards in its area," Mr. Mauny continued, "are agricultural and home demonstration agents; state agricultural services; extension departments; home economics teachers; the Soil Conservation Service; farm organizations, such as the Farm Bureau; bankers, merchants, chambers of commerce and service clubs. The Arkansas Press Association sponsors a statewide farming contest each year," Mr. Mauny said.

A. C. Spurr Describes Monongahela Power's Progress

Ten years' experience with territorial development were reviewed for the Conference by A. C. Spurr, President of the Monongahela Power Company, which pioneered in the agricultural development field with an extensive program in 1936.

The Company's progress with such projects as dairyherd improvement, soil conservation, the improvement of growing and marketing practices with specific crops and other activities was described in detail by Mr. Spurr. "Probably the outstandingly successful activity of the Company is its 'Farming for Better Living' contest," Mr. Spurr stated, "which is an annual feature."

This project is set up on a county basis. Cash and merchandise prizes are awarded to those farmers in each county, who show the most improvement in farming methods and living standards during the year. Contestants fill out detailed entry blanks, which reveal the progress achieved on each farm. During 1946, more than 1800 farm families in 24 counties participated in this program, with over $6500 in prizes being awarded.

Benefits to the Power Company

Discussing the benefits of an agricultural development program to the power company itself, C. H. Leatham, Vice-President of the Monongahela Power Company said that "as a by-product of the Territorial Development Department, the ordinary problems of operation have been greatly reduced, and in most cases, completely eliminated.

"Since the organization of the department, we have not had a rate complaint to the Public Service Commission; we have not had an adverse editorial of any kind in any newspaper; our regular employee relations are excellent; we have abandoned our Public Relations Department, as such, completely; we have secured 50-year franchises, which are the limit under West Virginia law, in municipalities just as the old ones expire by the simple process of applying for them. We have found that farmers as well as city people, are our friends and like to do business with us," Mr. Leatham said.

New Crops Raise Farmers' Income

A dinner meeting on January 25 featured LeRoy Holt, General Staff Manager of Sales for the Tennessee Coal, Iron & Railroad Company, Birmingham, Ala., who discussed the activities of his company which are aimed at the improvement of Southern agriculture. "A preliminary survey revealed that the average farmer in the South worked and earned income on a basis of a 1000 hour work-year, as compared to an average for the rest of the country, of 2500 work-hours per year," Mr. Holt said. "which inspired efforts to develop new crops, to give farmers at least four sources of income per year by replacing the one-crop economy."

"Other effort was devoted to prevent waste of natural resources," Mr. Holt continued. "Johnson grass, which harasses the cotton farmer, was given expert grading and marketing treatment, and was found to be a satisfactory and economical fodder for mules. Peanuts, a prolific Southern farm product, becomes a most profitable crop after its full uses are realized in laboratory research. Culled potatoes became a profitable crop when research showed that they could be dehydrated at low cost, and used as feed for farm stock."

"The proper start for an agricultural development program is an intensive study of the territory affected," Mr. Holt said, "to discover both its resources and needs, which will indicate the course for future action."

Idaho Power Aids Farm Chemurgy

The work of the Idaho Power Company in farm chemurgy, the science of putting chemistry and allied sciences to work towards greater industrial utilization of farm grown materials, was described in a paper prepared by Ralph Gale, Vice-President of the Company. In Mr. Gale's absence, the paper was read by D. E. Stewart of the Carolina Power & Light Company.

The Company, recognizing the peculiar agricultural needs and problems existing in its area, became interested in the program of the National Farm Chemurgic Council, and brought it to the attention of Idaho's farmers. Some results of the program, as cited by Mr. Gale, are:

1. The development of a white starch industry, which is based upon culls from Idaho's large crop of white potatoes. At present, four starch plants are producing about 22,000,000 pound of starch per year, valued at about $1,300,000.
2. About 4,000,000 pounds of dessert per year are being produced at one of the starch plants.
3. Potato pulp and other products formerly considered only farm waste are now being utilized. Thousands of tons of potato pulp are recovered and fed to livestock in semi-dry form. Sawmill waste is successfully used in the production of plastics.
4. An oil-producing seed, which has a high protein residue that is suit-

A session of the Agricultural Development Clinic at Fairmont

able for stock feed, is being developed. If this seed can be substituted for some wheat acreage, it will supply a high protein feed that now must be shipped into the state. The oil produced is used in the paint and varnish industry, and in normal times, will have a value about three times the value of wheat, per pound.

A Railroad's Record in Agricultural Development

"The Baltimore & Ohio Railroad has too great an investment in the 213 counties it serves to stand idly by, when an appropriate action suited to the needs of those counties, their production per acre and animal unit can be increased, thus making them more productive to the railroad from a freight traffic standpoint," the clinic was told by O. K. Quivey, Manager of the Agricultural Development Department, Baltimore & Ohio Railroad, Baltimore, Md.

"The B & O's thirty-year-old program first adopted a policy of Improved Soils, Better Sires and Rural Youth Training as basic to all agricultural advancement —a policy that is still fundamental today," Mr. Quivey said. "Two examples described as typical of the work of his department, in cooperation with agricultural colleges, include the transformation of a 300,000 acre belt of muck land in Indiana—formerly known as bogus soil, or one-crop land—into an area that today is among the nation's most productive farm land, and a "Better Lambs" program in West Virginia, which has resulted in West Virginia lambs selling at premium prices for the past 15 years, and has tripled car loadings of lambs on the B & O.

"Today the directors of agricultural extension, deans of agricultural colleges, extension specialists, county agents and rural leaders look with high favor upon the B & O's Agricultural Development Department. Its representatives are not only made welcome, but are sought and consulted in agricultural matters of importance to the area," Mr. Quivey concluded.

Agricultural Agency Representatives Discuss Development

The next feature on the program was a symposium entitled, "How Other Agencies Can Supplement Our Services," which was presented by four representatives of as many agricultural organizations working directly for rural progress.

J. O. Knapp, Director of the Agricultural Extension Service of West Virginia University, declared that none of the existing agricultural agencies have sufficient staffs to allow them to carry out their broad programs unaided. Leaders in all walks of life can render important assistance to the extension service, he said. The power companies, railroads and other industrial companies can provide needed services, and can reach people that the agricultural agencies cannot reach.

"Farmers had to be shown that scientific treatment, and college-trained people, could help them," Mr. Knapp declared. "They now welcome the help of the agencies, because they are convinced that the agricultural agencies are sincere, capable and are trying to help them," he said.

L. L. Lough, State Conservationist of the Soil Conservation Service of West Virginia, said that the electric company has an important stake in conservation, because it is a means of protecting the investment in the rural areas served. "If productive land is permitted to deteriorate," Mr. Lough pointed out, "the earning power of the land is decreased; the nutritional value of foodstuffs produced in the area drops, and the whole tax structure of the community and state is endangered."

"Electric companies can assist the Soil Conservation Districts in each state by an overall program of agricultural development designed to improve farming methods, by encouraging farmers to accept soil conservation methods, and by demonstrating the importance of conservation to urban people and stimulating their support for this program," Mr. Lough explained.

F. L. Miles, Executive Secretary of

(*Continued on page* 40)

Our Ten Years' Experience with Territorial Development

By A. C. Spurr
President, Monongahela Power Company

Presented at the Agricultural Development Clinic, Fairmont, West Virginia, February 5, 1947

MAY I, at the start, thank those who have made this conference possible. We, of the Monongahela Power Company, feel deeply honored and very humble that so many representatives of the nation's electric light and power industry should come to Fairmont to attend this clinic and that we are to have the privilege of telling and showing you what we have tried (from necessity) to do to assist in the development of a better agricultural economy in the territory we serve.

Grass-Roots Story

In a very real sense this is not an easy story to tell. It's very difficult to boil down 10 years of experience to a 30 minute talk. The program we help on is not ours. We are only implementing the tried and tested programs of the Extension Service, the College of Agriculture and the Soil Conservation Services and working with others, such as the Farm Bureau, who are interested in the increasing of farm income. In order to supplement the general story of our agricultural program we have placed around the sides of this room examples of the work done, newspaper clippings and other items that will give you more of the details. But even that won't tell the whole story so we have our technicians and counselors here to give you in personal contacts the low-down, grass-roots story.

We've been lucky in being allowed to work along with those interested in all phases of agriculture. So much of our work has been with the Upper Monongahela Valley Association that we just get in the habit of saying "we" when we mean all of those working on the program — the Extension Department, County Agents and Home Demonstration Agents, College of Agriculture, Soil Conservation Service, State Department of Agriculture, Farm Bureau, etc. It's hard to keep the story straight but I'll try.

We sorta got kicked into this whole program. Back in 1934 a committee sponsored by Mr. Ickes came into the Upper Monongahela Valley and with the assistance of the University and others made a thorough going study of the valley and found a lot of economic and social shortcomings. There was a lot to be done and some one had to do it. The committee was thinking in terms of another TVA. But when it had finished its survey two of its three members favored turning the job over to private enterprise, mentioning particularly the private power company (and that is and was us) and other industries and businesses, to prove that if private enterprise couldn't produce, then there was no alternative but for the government to step in.

Balancing Rural Economics

Mr. Oscar Chapman, now Under Secretary of Interior, who entered the dissenting opinion you will see on one of the exhibits here later came into the valley when the work was in full swing and commended the people for their progress and particularly in the improvement of the spirit of the people.

The committee filed a voluminous report filled with much vital information. When summaries arrived we discussed the matter with the editors of all the newspapers and they agreed to sponsor an association dedicated to improving the 10-county area. Among the things the committee found was that while 20 per cent of the population were engaged in farming they received only 3½ per cent of the area's cash income. Unquestionably here was the most important place to start putting economics into balance.

We determined to make a start then in agriculture. We talked to county agents, the extension department, the Agriculture College, farmers, etc. It didn't take us long to find out that we didn't know how to find out what we ought to know, for like most city folks our knowledge of the farmer and his problems was almost zero. We got our real start in agricultural work when we found Roy Godley with the help of the Extension Department, and Ken Quivey, of the Baltimore and Ohio Railroad.

Our first specific project was in dairy herd improvement. A study had been made by the county agent here in Marion County which showed that of 27 herds with a total of 482 head that 18 were losing money and the other 9 averaged only 4c. per hr income for those who took care of the herds. The cost of feed was too high and the yield of milk was far below what it should have been. Upon the recommendation of the University authorities the UMVA bought two pure bred Jersey bulls and loaned them to existing cattle clubs, the UMVA to get one bull calf per year. When this program reached its ultimate growth the UMVA owned 12 Jerseys and 6 Holsteins. The result of this program was a betterment of the breed of the dairy cattle and a noticeable increase in the yield.

The Association has dropped its dairy herd improvement effort since the more modern artificial insemination program worked so successfully. Just a few weeks ago "West Virginia Dare," the first calf produced by the artificial insemination program, received much acclaim. The project is more than paying its own way and is now in process of expanding over a good portion of the state.

Dairy Industry Progress

The interest of the farmers and agricultural agencies was one of the most important factors influencing the Carnation Milk Company to locate a plant just west of Clarksburg. This plant came in 1938. Carnation seems satisfied as they have added a can plant and I know the dairy industry is pleased for during 1946 Carnation paid the farmers and truckers in excess of $2 million for their milk. You can see that such efforts

on the part of a community means much in the additional money moving through trade channels and helping every one.

Enough for this phase of the farm program except to say dairy herd improvement work will always continue to be of real importance to all of us here because we are a deficit state in dairy products.

Selling the Farmer's Market

Upshur County has a soil particularly adaptable to growing strawberries. Working through the Upshur County unit of the Upper Monongahela Valley Association, friends in Wesleyan College and the usual agricultural friends, interest in increasing the growth of strawberries was awakened among the farmers by the business men of Buckhannon to the extent that more than 2,000,000 additional plants were planted. As more strawberries were produced a ready market was found. In fact one customer agreed to take all the strawberries produced. So great was the interest in this crop that a Strawberry Festival was organized which was one of the main events of the spring until the war intervened.

The Upper Monongahela Valley Association through its Randolph County unit was responsible (again with the usual agricultural agency help) in starting a potato marketing co-op. The brand name "Upper Ten" was adopted (there are 10 counties in the UMVA) and uniform sacks bearing the brand name were put in use. (Incidentally, the bag manufacturer is a customer of ours.) The "Upper Ten" potatoes were soon in heavy demand which rose more than 700 per cent before the war stopped special packaging, but this is again coming back into use. The farmer receives 30 to 40c. per bushel more for the 'Upper Ten" brand potatoes than they formerly did.

In Preston County we brought together the makers of buckwheat flour so that 19 out of 22 mills marketed their product under the "Upper Ten" brand name. Again our customer furnished the bags and the millers saved enough through joint buying that they were able to put a radio program on the air. From this cooperation came the Buckwheat Festival which was revived this fall in all its colorful beauty and its gorging lunches of buckwheat cakes and country sausage, together with Preston County maple syrup.

Among other things we got into were sponsoring Annual Ham and Bacon shows designed to encourage a better cure of pork to be distinctively West Virginian; sponsoring with others feeder-calf shows, dairy-cattle shows, beef-cattle and special-breed shows; and recently getting a very successful cauliflower growing and marketing project under way.

All these were more or less special projects that did succeed in increasing farm and community income. This is directly in line with our thinking which is that the customer has to make money first before we can. Therefore, we selfishly help him all we can so that eventually we can make more money. And may I remark here that whenever we start on a new project or program we are very, very frank in saying we are in it to make money but that the others must make it first before we can get a chance at it. We point out in a city that the general merchant will take about 22 per cent of every new dollar of income created, the automotive services about 18 per cent, the real estate about 17 per cent; amusements, etc., about 7 per cent, while we get 1.2 per cent of the payroll dollar, but that justifies our participation.

"Farming for Better Living"

With all the effort that had been put into work, still we were not satisfied: agricultural development lacked the punch it needed. After looking around and holding numerous conferences with representatives of the extension department and the Agricultural College we decided to adapt for this area a program that the *Memphis Commercial Appeal* had been running a few years called "Plant to Prosper." We changed it considerably and called it "Farming for Better Living." The idea really clicked. It was the old principle of teaching by example and getting participation by recognizing good work.

The program was set up on a county-contest basis with prizes going to the contestants showing the best examples of improvement in farming methods and improvement in living.

Farm interests were merged with urban interests. Business men, bankers, professional men and industrialists all serve with farm people on county councils and helped provide the premium lists. And they take a leading part in the annual county banquets when the winners are announced and the prizes awarded. After that comes the area-wide round-up dinners with the announcement of the winners in each county and awarding regional prizes. The banquets are sponsored by business organizations, the two big regionals at Parkersburg and Clarksburg being sponsored by the Chambers of Commerce.

The program started as a UMVA project but was later expanded to the Central Ohio Valley region where the newspapers sponsored it and we supply the project director as we do elsewhere. This year there were 24 counties in West Virginia in the program and more than 1800 farm families participated striving for more than $6,700 worth of prizes. Size doesn't mean everything but the number of completions and the increased farm income shows the program to be worth while as a means for spreading the best farming methods.

In addition to the project directors who are in constant touch with the program throughout the year, Major Robinson, of the publicity department has an important role in keeping interest alive and in helping to teach better farming. As the year rolls along he goes out through the territory with his camera and one of the project directors to take pictures of as many of the entrants as possible and then write stories about the things that they believe they do well and the stories and pictures are printed in the local papers of the county. The newspapers cooperate splendidly on this as in everything connected with the program. The publicity helps teach better methods and stimulates enrollment.

I might mention, too, the sound motion picture projection truck. The Upper Monongahela Valley Association wore out two trucks carrying the gospel of better farming and better living to farmers even in the remotest areas. Maybe I should have said the Extension Division wore out the trucks and equipment because while the Association furnished the equipment the Extension Division furnished the operator and most of the films shown.

Go Professional

To me the two most important factors in the worthwhileness of the Farming For Better Living Program are the County committees which guarantee county-wide interest and a better understanding of mutual problems and the work that the project directors do in helping teach better farming. All of the directors are graduate agricultural specialists and I would advise anyone who is thinking about starting such a program, don't take an amateur—go pro-

fessional. You've got to gain the confidence not only of the farmer but your men must be well enough equipped that the extension authorities and others we are privileged to work with will trust them with carrying out their pet programs.

Our project directors and for that matter the whole Territorial Development Department, is kept entirely free of commercial obligations. We want these people to be free to work for the best interests of the farmer or for whatever segment of the population they are specifically serving and that they cannot if they are trying to sell appliances or increase power sales. We figure that these things will come naturally. Besides, we have another group, known as District Representatives, who do the commercial job. They too, are farm minded, know the farmer and how to work with him, but their job is selling and service.

Soil Conservation Program

Our most recent project, a Soil Conservation program, started after an engineering survey by a man who had been associated with Dr. Arthur Morgan on the Dayton dams of the Miami Conservancy District and more recently resident engineer in charge of the lay-out and construction of the Muskingum Conservancy dams. This survey revealed that our top soil was being washed away at an alarming rate. Today surveys show that more than 50 per cent of our top soil is already gone. This condition is damaging farms, reducing the nutritional values in food stuffs, causing floods that cost farms and communities millions of dollars, destroying timber and wild-life resources—in fact hitting at our whole economic machinery. The trouble originates at the head waters of our streams where the rain falls and immediately runs off. The engineer pointed out that 50 per cent of the flood damage actually occurs above the point at which a flood control dam would be located and even with a dam this damage would continue unless soil conservation methods were utilized.

To attack this problem, just about a year ago we persuaded Walter Gumbel, a former county agent in West Virginia, and a pioneer in soil conservation work, to come with us. He has a three-fold purpose with us. One is to preach soil conservation and its impact on our economy to all who will listen, interesting the urbanite as well as the farmer. Second, he is endeavoring to sell sound conservation methods to the farmer, working primarily with groups in the same watershed; and third, to work with our established agricultural and conservation agencies (Federal as well as the local soil conservation districts) in formulating programs and directing the attacks against erosion.

The West Virginia Chamber of Commerce's agriculture committee, of which I am chairman, is trying to spread the same philosophy on a state-wide basis. The committee has been conducting what we call rural-urban forums—an effort to get business men to realize that the farmer is as important as industrial smoke-stacks, and to get them to think of the farmer and his problems as a part of their community and their problems.

The response to these forums has been most encouraging. Over at Parkersburg, a meeting sponsored jointly by the State Chamber, the Parkersburg Chamber of Commerce and the West Virginia Bankers Association attracted more than 350 people. Our company was well represented and several of our people took part in the discussions. I might add here that the principal speaker was C. W. Bailey, President of the First National Bank of Clarksville, Tennessee, and now President of the American Banker's Association. After seeing what we of Monongahela and of other enterprises in West Virginia were doing, Mr. Bailey offered the comment that if the industry as a whole followed a similar course, there would be no more TVAs.

Using Rural-Urban Forums

Other forums drew equally large attendance. Our latest meeting of this kind was outside our territory. Of course, the forums are being held on a state-wide basis and my company is only an incidental part. But apparently the people who set up that meeting recognized us as a most important part. Nearly all the speakers on the program were representatives of Monongahela. And I might add that not one of the large number of business men and farmers present seemed to think it unusual that such a condition would prevail.

Perhaps I'm biased, but the forum idea looks like a mighty good one to me. Urban interests have a big stake in their agricultural areas. The more money a farmer earns, the more he's going to spend in the urban stores. Business and industry can do much to help him raise his income and living standards and at the same time help themselves. Together, the urban and rural districts can accomplish much.

Last year we were asked by a group of 18 editors to help create and work with another regional organization similar to and modelled after the UMVA. Today it is known as the Little Kanawha Regional Council, an eight county area drained by the Little Kanawha and the Ohio Rivers. First step that we are taking in this area is to make an analysis of its assets and liabilities and then in conjunction with the people of the various counties to map a program that we can all work upon to better the economic standing of its people.

Soil conservation is a particularly serious problem in that area. Jackson County for example shows 59 per cent of its land not suited for crops and another 19 per cent listed as submarginal land.

Best Help and Advice

In the Little Kanawha Region, as in every other part of our territory, we realize full well that if we are to retain the confidence of the farmer and of all the agricultural folks, we must offer the best advice and help that we can possibly procure. In line with that, about February 1st we employed a graduate agricultural economist to work in our territory and for the next year we expect the entire staff of the Territorial Development Department to be kept busy with county clinics, seeking to assay resources, and with the people of the territory formulating sound programs.

I'm not going to attempt to prove in this talk that what we have been doing with our Territorial Development and especially with the farm program pays off at the bottom of the line. Suffice to say that in the next five years we will almost double our present investment. Mr. Leatham, our Vice-President, a dyed-in-the-wool commercial man, accustomed to having every job justify itself, will tell you what he believes our program to be worth.

Let me in conclusion say that ours is not in any sense a public-relations program but that it is productive of good public relations and therefore good publicity results from the fact that we share problems and responsibilities with those we are privileged to serve and work with. Maybe we're a bit more lucky than most companies in the fine type of people who allow us to work for and with them, but at all events it's been fun and more than that, it's a thing that will be well worth the consideraion of everyone.

What Is The Pay Off

On Agricultural Development

By C. H. Leatham

Vice-President, Monongahela Power Company

Presented at Agricultural Development Clinic, Fairmont, West Virginia, on February 6, 1947

MY purpose in talking to you is to suggest an answer that you might give to the folks back home when they ask you what the company gets after spending what seems to be so much money.

First of all we are *not* spending so much money when we consider operating over a wide area and would be having a great number of contacts somewhat along the so-called public-relations line anyway. Of course, we cannot tell how many of these we would have if we did not have a Territorial Development Department, but we have very few now. We do not spend money just telling people that we are good boys. When we go out now it is to work with our people along some constructive line for their benefit as well as ours, and such problems as require public relations treatment are certainly small indeed and readily answered by the local meter reader. It becomes easily understood by the ordinary man that no company or person who is doing good things in the community is out to do much harm to the individual.

Dealing with Everyone

There are problems that come up at intervals and always will because they are inherent in our business. We deal with everyone including local governments themselves. From time to time we must renew our franchises, street lighting contracts, or other rights to do business. To be able to deal with local governments without the aid of counsel or expect help is both satisfactory and less costly.

Since it is impossible to sell our services each time we read the meter, like a store selling goods and offering a choice, people are naturally inclined to believe they pay too much regardless of our rates. We advertise the fact that our service is cheaper and lower priced than ever and that certainly helps, but it is a poor substitute for actually meeting our customers each time they need electricity and offer them some choice of grade, or being able to explain the good features of what we have to sell.

Another factor we can only hope to offset is the occasional failure of the service or failure to give service on time due to shortage of material or labor. Operating organizations are never as good as we would like them to be. There will always be a few new faces among us who do not know how to transact our business to the satisfaction of our customers and we must compensate for these problems.

Appliance Repair As a Service

Then many of us are selling utilization equipment or appliances in more or less competition with others selling the same items. Granted that we are only in the business to hold up the standard and keep it from becoming a racket, yet others in the business are likely to see it as competition, even though there is room for everyone, and in most cases this so-called competition would suffer if we were to step out. If we did not have an appliance repair department during the war nobody would have had service here.

Then there is the general problem of employee relations which these days in many places is not ideal. Mass production in industry resulting in a great increase in jobs calling for routine work only is one of the contributing factors to employee dissatisfaction even though the statistical facts may show that the organization is well paid and that working conditions are good. While we may not suffer as much from the ills of routine work as the average industry, we are mechanizing our operations as rapidly as we can to cut cost and this certainly is in the public interest. We do, however, have a lot of simple routine work that must be done by hand and we must supply these employees something to think about if their work does not fully occupy their minds. An idle mind is still the Devil's workshop. The average employee is becoming interested in our community activity and many of them are surprisingly active. If a community needs help in civic activities we generally have it for them in our local organization.

Selling days are just around the corner for us and if you think back you will find that you never did sell anything to a man who didn't like you well enough to trust you. Now the cost of making a large volume of sales of our products, either of service or equipment, is basically the cost of making a large number of friends first. You do it in the same manner now or you would not be here. Farmers in particular must know you well enough to trust you with their money just like we must know them well enough to extend credit. Friendship is something we must keep working for, if we gain or keep it and wherever the word work enters the vocabulary of a utility you can always add the word cost because as far as the financial statement is concerned they mean the same thing. The Territorial Development Department makes and keeps friends for the company.

"Before the Horse Is Stolen"

There may be other factors more or less common contributors to the problem of utility operation but what I have given are typical. The point I want to make and leave with you is that all these problems must be allowed if we are to stay in business and this costs money for a corporation since everyone gets paid for the time required to do it. It would be impossible to say how much the annual cost is, but if you have a Public Relations Department, for example, it does cost and if they are trying to lock the stable door after the horse has been stolen you usually find they also have to patch up the door. In addition you need to get a new hasp and a new lock, and the total cost will be more than to have locked the door in the first place. Besides you never do get your horse back. Our department locks the door for us while we still have the horse, by creating a helpful, friendly attitude among our customers and in our community.

I would not have you go away from here thinking the Monongahela Power Company established its Territorial De-

velopment Department to cut its cost of operation, but I do want to make clear that as a by-product of the department the ordinary problems of operation have been greatly reduced and in most cases completely eliminated.

It is enough to say that since the organization of the department we have not had a rate complaint to the Public Service Commission; we have not had an adverse editorial of any kind in any newspaper; our regular employee relations are excellent; we have abandoned our Public Relations Department, as such, completely; we have secured 50-year franchises which are the limit of West Virginia law, in municipalities just as the old ones expire, by the simple process of applying for them. We have found farmers, as well as city people, are our friends, and like to do business with us.

Finally, above all, there comes the satisfaction of knowing that working in the interest of our people is a very constructive thing—we sleep well at night. We always did know, that electricity is a cheap and reliable servant but when you add to it the possibility of being a means of coordination of all agencies working in the interest of our customers you add value to its service that folks recognize and I am convinced that the reduction in cost of doing business has been greater than the cost of the Territorial Development Department.

In November, 1936, when Mr. Spurr organized the department, we had 102,711 customers and 1183 permanent employees. In November, 1946, we had 160,168 customers and 1265 employees. An increase of 57,457 customers and only 82 employees. A 56 per cent increase in customers with all that goes with that and less than a 7 per cent increase in employees. Now, we all know we provide a better service than 10 years ago and also that hours worked have been reduced. We just don't have the work to do in proportion to the business done. All our employees work on positive things—we don't spend time and money defending ourselves and we think this is in the public interest. There are other figures we might use to further back up the overall picture but they give the same answer. For example, we expect to spend about thirty-three million dollars in the next five years to provide service for our unprecedented growth. I believe the Territorial Development Department has, in fact, been the most profitable enterprise the company has engaged in, for us and those in our area.

Agricultural Development Clinic

(*Continued from page* 35)

the West Virginia Farm Bureau, declared that "only the efficient farmer can stay on the farm and make a living." "Electricity and sound guidance make for efficiency in farming," he said.

"In West Virginia, the farmer and the power company are working together for each other's benefit," Mr. Miles stated. "The 'Farming for Better Living' program originated by the Monongahela Power Company has increased membership in the Farm Bureau, and has directly increased the cash income of thousands of farmers," he said.

J. C. Boggess, County Agent, Barbour County, W. Va., discussed the success of the "Farming for Better Living" program, and attributed its success to three principal factors. "First," he said, "the company employed the proper approach by taking the program directly to farmers, merchants and others, and letting them work out the details. Second, the technical help and guidance furnished by the Company was a most important element in the success of the program." Another point emphasized was that the Company representatives have proved their sincerity, and have never given farmers cause to feel that the Company is in the program only to increase its sales. Selling has never been mentioned, Mr. Boggess declared.

Power Companies Describe Their Programs

The Clinic's closing feature was a description of plans for agricultural development programs by representatives of three power companies.

Neil Bolton of the Tidewater Power Company, Wilmington, N. C., announced that his Company is preparing an agricultural development activity, which will follow the idea of the Monongahela Company's "Farming for Better Living." Much interest is being found in local farmers and business men in the idea of an all-inclusive program which will have as its main premise the assistance of local agriculture, he said.

R. M. Pulver, of the Minnesota Power & Light Company, Duluth, Minn., said that his Company is planning ahead, in preparation for the day when mining will cease to be the main source of income in the territory served. The Company is concentrating upon its rural electrification program. Feeling that it can prosper only if the communities it serves also prosper, the Company is giving agricultural development activities a place of increasing importance in its plans, Mr. Pulver declared.

E. C. Easter, of the Alabama Power Company, Birmingham, Ala., said that his Company's agricultural development activity is carried on by a staff of 26 rural service engineers, who also assist in serving electricity to customers. Agricultural engineers employed by the power company also perform definite developmental functions.

The objective is to make agriculture return more income to the farmer. All projects are carried forward in full cooperation with agricultural agencies, Mr. Easter said.

Additional Data on George A. Hughes Awards

THE story on the Edison Electric Institute's Prize Awards in the January issue of the EEI BULLETIN inadvertently described only that part of the George A. Hughes Award, which offers a trophy, plaque and $500 in cash prizes to electric companies achieving outstanding progress in the promotion of residential electric ranges during 1947.

Other prizes offered under the Hughes Award include a trophy, plaque and a total of $1,000 in cash awards to electric companies for the greatest achievements in promotion of the all-electric kitchen, with emphasis on the electric range, refrigerator and dishwasher.

For achievements in the promotion of commercial electric cooking, a trophy, plaque and a total of $500 in cash prizes are also offered, under the Hughes Award.

The electric company can enter in all three contests, or in any individual contest, if desired. Full details of all the contests are available from the Institute. Entries must be received by EEI on or before February 1, 1948, and the Awards will be made at the EEI Sales Conference in 1948.

Wanted—Vols. 1 and 32 N.E.L.A. Proceedings

VOLUME 1 of National Electric Light Association Proceedings, which covers the first, second and third Conventions of NELA in 1885-1886, and Volume XXXII, Part 3, which contains the proceedings of the 30th Convention in 1907, are urgently required.

If you have extra copies of one or both of these volumes, please get in touch with the Editor, Edison Electric Institute Bulletin, 420 Lexington Avenue, New York 17, N. Y.

Public Relations Along the Right-Of-Way

By E. S. Mathers

Assistant System Chief Operator, Pennsylvania Water and Power Company, Baltimore, Maryland

Presented at the Transmission and Distribution Committee Meeting in Atlanta, Georgia on February 11

TO judge from some of the questions put to me today, some of you take me for an expert of some kind on public relations, with whatever that term includes. This, I assure you, I am not. Furthermore, I am not guilty of tagging this talk with its high-sounding title of "Public Relations Along the Right-of-Way."

Actually I am, and always have been, a member of the Operating Department. The fact that I was sitting "too much in view" during a meeting held some years ago is mainly the reason that I became involved in what certain people have been kind enough to call "public relations work."

That meeting was called for the purpose of discussing the idea of getting some of the residents who live along our various transmission lines to report weather conditions during the approaching winter season. The decision of the "High Command" was that the proposal was a good one and should be put into effect. I was incautiously sitting too close to the man who had the final say, and he ended the meeting by looking towards me and saying: "You do it." That was the start of my public relations work.

Our real estate department furnished me with a list of thirty-six names and assured me that the people selected were ones who would be friendly and would probably go along with our plan. I did not know, however, that they deliberately included the names of people where some difficulty had been experienced in getting the right-of-way. The real estate crowd wanted to find out how much cooling-off had occurred in the four years since the line was built.

At one place my knock at the door was answered by a rather good-looking woman of about forty-two years of age. I inquired whether Mr. was at home: she said "No" and wanted to know what was my business.

I started out by saying—I was E. S. Mathers of the P. W. & P. Co., Operating Department—that's as far as I got. With hands on her hips she sized me up from head to foot and then in a voice modulated with bitterness, she said—"Well, young man—I've been waiting for this opportunity for a long time." And then the storm broke! For the next thirty-five minutes all I said was, "Yes Ma'am, No Ma'am," and "I'm very sorry."

Her story in a few words was this: the right-of-way men knew she did not want the line on her place, so they avoided her. And the property was jointly owned by her husband and herself, they finally got him to sign at a figure way below what they would have paid her. Throughout the lecture I had the feeling I was back in school and she was the teacher. Her choice of words, phrasing, the appealing gestures she used in trying to get me to say something other than "Yes Ma'am" or "I'm very sorry" would have been amusing—to somebody else. In fact it was beyond her how anybody could be so dumb. From the very beginning it was quite evident the woman was well educated and I was later to learn she had been a teacher in one of the small town high schools. When she finally finished she quietly said "What did you want to see us about?" in a voice that was very meek. I assure you I told her our problem.

During the month of February when we had a bad sleet storm, two of our 66,000-volt circuits broke down and two others tripped out, several times interrupting service. Throughout this storm we were receiving frequent weather reports from our own patrolmen who live along the line, yet none of these men saw any ice formation on the conductors at their locations. Later investigation revealed that three and one-half miles to five miles from one of these locations heavy ice had formed on the conductors and got us into trouble, and that was the reason for my visit—to ask if they would allow us to put one of our thermometers in an exposed place and permit us to call them when necessary for temperature readings and the state of the weather—and that we expected to pay them for this service. She then asked several questions—"did we have much trouble from sleet, where we sold the electricity"—she stated that she once visited our Holtwood Plant. So I explained to her in simple language just where we got our electric power and what we did with it.

After completing my story and in the act of bidding her goodbye, she said that if she could be of any service she would be glad to do what she could. In fact, she became one of our best weather observers, keeping a written record of the dates and time she was called, or when making calls to us, along with the existing weather conditions and temperature.

As we expanded our transmission system we added more weather observers until at the present time the number is forty-three.

At first it was somewhat difficult to get all the patrolmen to feel they could call on these people any time of the day or night. Some patrolmen, however, not only called the people out at two o'clock in the morning but kept the resident on the job for two or three hours. One resident actually leaves his kitchen door open all night so the patrolman can get into the house to warm himself and use the telephone.

Another difficulty has been that some of our station operators who decide when a circuit shall be "heated," are somewhat reluctant at times to accept the temperature readings obtained from these residents as true readings, for often such readings differ considerably from the temperatures recorded at the power station. It is still difficult for some of them to accept the fact that there may be wide variations in temperature and weather in areas only a few miles apart.

although they well know that failure to recognize this fact in the past got us into serious trouble.

Many residents take a real personal interest in the work and call the patrolmen whenever they see ice forming on exposed objects such as the washline, wire fences, etc. This has been helpful to us on several occasions. A small number do only what they are asked to do and that sometimes not too willingly. But we feel that the plan has worked very well. These people are paid for their services $5.00 to $30.00 per season in cash for which they sign a receipt. The amount each resident receives is left up to the patrolman and myself who base our decision on the number of calls and the time of day or night the calls were made.

Since we built our first transmission line, we have experienced insulator and conductor damage caused by persons shooting into the line. This became quite troublesome but the company did very little to combat it. It so happened that two of the residents selected as weather observers, one on the Holtwood-Baltimore transmission line, the other on the 220-kv line to Washington, lived adjacent to places where considerable trouble was being experienced with insulator shooting. Both of these places were near streams where city folks gathered for Sunday picnics. A number of these folks brought rifles along for target practice and apparently could not resist the temptation to shoot insulators. One Sunday they damaged 22 units. Arrangements were worked out with both residents to notify our patrolman whenever they saw cars in that area, especially when those cars were on the right-of-way, and to take their license numbers. The patrolman then notified the county police or went there himself. If the picnickers had guns, they were given a sound lecturing including a threat that action would be taken to prohibit them from coming there in the future; within a six-month period we had eliminated "gun toting" at both places. This was in 1939. Since that time, one location has been entirely free of insulator shooting and only one shooting occurred at the other location.

In 1936 we experienced circuit trouble from ice formation on the conductors of two of our 132-kv, 25-cycle lines between the Safe Harbor Plant and Perryville, Md., a distance of thirty-one miles. No facilities were provided for melting sleet. On this occasion one conductor burnt in two and fell to the ground. The superintendent of operation and myself happened on the scene before any of the repair crews. While we were walking around the fallen conductor, we observed something that was quite disturbing. There were numerous small footprints in the snow which crossed and recrossed the fallen conductor several times. These footprints followed a trail which began at the nearby county road that crossed under the line one span away then crossed a field to the transmission line, followed the line for a short distance and trailed back to the road. Later we learned these footprints were made by five children between seven and thirteen years of age and that one boy had touched the fallen conductor. Furthermore, a farmer and his son on their way up the same road were blocked by the sagging of the broken conductor. They cut a forked sapling long enough to raise the conductor high enough to allow passage of their small truck. The circuit failure occurred at 8:07 A. M. Between this time and 8:51 A. M. the circuit was tested several times at *normal voltage*. You can appreciate our feelings when we learned that the children, the farmer and his son were on the "spot" between 8:15 and 8:45 A. M.

Some measures had to be taken to warn people of the danger of handling or going near fallen power line wires. It was decided that I was to see all the people living along our transmission lines, and also the nearby county schools to explain the danger in handling or being near fallen power line wires. In addition I was to give these people the telephone number of our nearest power station and patrolman to be called whenever they saw any unusual things along the line such as wires hanging below their usual position, arcing, etc. After visiting a few places it was evident to me that these instructions would have to be in some written form. As a result we prepared a card which stated:

Dear Friend:

The steel tower transmission lines that pass near your home are operated and maintained by the Pennsylvania Water and Power Company.

The operation of many important industries and the welfare of many people depend on the electric power supplied by these lines, therefore, it is very important that they be kept in service at all times.

If at any time you see any unusual conditions on these lines such as sparks or flashes of fire among the cables, a cable hanging below its usual position, kite strings, pieces of wire, etc., hanging on the cables, or serious brush and woods fires on or near the transmission line, please get in touch with your nearest patrolman as soon as possible. If you cannot get him, telephone one of the other places listed on the last page inside.

PENNSYLVANIA WATER & POWER CO.
Lexington Building Baltimore 1, Md.

On the reverse side of the card was the patrolman's name, his telephone number, the telephone numbers of our offices, power stations, and substations. At the bottom of this card we stated the following:

Whenever you report information, please give your name and post office address, so that the Pennsylvania Water & Power Company may reimburse you for your trouble and expense.

This statement was suggested by one of the patrolmen. However, a number of our office folks thought it would be the wrong thing to do as it would encourage people to tamper with the line, or throw a piece of wire into the line, and then give us a call. I am very glad to report that we do not have a single record of such a case.

The work of contacting each resident got under way late in the summer of 1937, but due to the press of other work, only three hundred and sixty places out of approximately 950 had been visited by the time winter weather made traveling rather difficult. We did not get under way again until late in 1938. It was evident that interruptions would extend the work many months, and since we had received several calls which were of considerable help to us from the people (about four hundred) who had already received cards, it was decided to have each patrolman make a general distribution of the cards to all residents along the right-of-way and any other place they thought would bring results. The total distribution of the cards at this time was around nine hundred including not only the residents living along the line, but also rural mail carriers, school bus drivers, gas stations and country stores.

At the advent of World War II, the company management decided that it would be desirable to place "No Trespassing" signs along all our transmission lines. To acquaint each property owner with the reason why the right-of-way was being posted, it was decided that I should visit each property owner, approximately twelve hundred of them. The intent was to assure the residents that the signs did not refer to them. It

has been our company's policy to buy in fee simple as much of the right-of-way as possible which is leased back to the resident without any charge—he using the land for farming or grazing so long as he does not interfere with our entry to the right-of-way. We also will build fences along our right-of-way on a fifty-fifty basis, if the resident so wishes. We supply the gates (so far about 1050 of them) whenever the farmer wishes to fence off part of his property which includes the right-of-way.

The work of contacting all property owners began during the early spring of 1942 and was finished in October that year. Not only was the resident told about the posting of the right-of-way but I also took this opportunity to make another distribution of the card. By the time the work was completed I had visited eight hundred and seventeen locations, talked with seven hundred and eleven people, anywhere from fifteen minutes to one and one-half hours. Now remember, practically all the people I visited had received at least one issue of the card, some two and three times; however, a check indicated that only about 50 to 55 per cent of the people had the card and knew where it was. About 20 per cent remembered receiving a card but did not know where it could be found. The remainder did not remember that they had ever received such a card. We then decided that the card should be replaced by something that would be of some benefit to the residents which they would be less likely to lose or mislay. A calendar was chosen with the information that was printed on the original card used for the front cover. Telephone numbers and some additional information was placed on a card and inserted inside the calendar. First distribution of calendars was in 1945, 896 of them have been distributed for 1947. This gives you a chronological development of what has been referred to as "our public relations work."

You no doubt have asked yourself: "What has the P. W. P. Co. gained by this and what has been the cost?" Let us look at the benefits first.

In 1942 we had the misfortune of losing two of the Holtwood-Baltimore 66-kv transmission lines from wet snow. The first trouble occurred at 9:05 A. M. Additional trouble occurred at 9:30 A.M. The son of one of our residents living near the line while going to the chicken house to feed the chickens noticed that the pole line wires, as he put it, were hanging almost down on the ground. He told his Mother about it and she having a card and knowing that we wanted to know such things immediately tried to call our nearest patrolman but was unable to get him. The wet snow had caused a complete breakdown in the telephone service in this area. She tried several times with the same results. She then tried to get one of the other telephone numbers listed on the back of the card, but was told by her local telephone exchange operator they could not get into Baltimore. This lady convinced the local telephone operator that it was very urgent the Power Company know the wires were down. To complete the call it had to be routed around Baltimore through several county exchanges and then into Baltimore to our load dispatching office. At 10:55 A. M. we were notified where this failure had occurred and sent our repair crews directly to the break. The weather turned bitter cold in the afternoon and evening. While our repair crews were working in the vicinity, this lady made quite a lot of coffee for them and some of the men went into her house to warm up. A nearby store which we had previously contacted and given a card opened up and the store owner's wife made sandwiches and pots of coffee. The first lady was paid $5.00 and the second $15.00, above the cost of the food.

Another example concerns a woods fire approaching right-of-way. A farmer was unable to contact our patrolman, so he called out three county fire companies who extinguished the fire. There is no doubt that had the fire burned to the edge of the right-of-way, at least one circuit would have been damaged. As it was, we lost only one telephone pole. He was paid $15.00 for his trouble. We had one rather amusing incident of a lady who called up and got hold of our Baltimore office and reported that there was a fire coming down through the field and surely would burn the line down. She was so excited and so busy running to the window and then to the telephone to tell me about the fire that she forgot she had coffee on the stove until it boiled over and ruined the coffee pot. When I went to see her we settled on the coffee pot at a cost of $3.95. Another amusing incident was in trying to repay one lady for the excellent work she had done to break up insulator shooting. She refused to take any money because she had benefited too. Some boys had actually shot and lamed one of her cows and she was fearful that a stray bullet would strike her while she was working outside. At the time I was at her house she was redecorating her kitchen and so we decided that instead of accepting any money I was to purchase three pairs of curtains for her kitchen which would amount to about $9.00.

In 1945 on three occasions prompt action by residents along the line saved us from making a patrol.

Once a buzzard came in contact with a 66-kv circuit, tripping it out. Fifteen minutes later we had a report of where this occurred. On two other occasions residents reported that lightning had struck a circuit or close by it. According to our transmission line department, patrols made after a circuit outage cost from $125.00 to as much as $200.00. On that basis we saved several hundred dollars in patrol costs for 1945. Our calendars for 1946 cost $230.00. Total money paid to residents for services rendered last year was something under $400.00. These same figures will apply for 1946.

The patrolmen have stated frequently that before our public relations work started there were many people who took every opportunity to make complaints about the way the patrolman drove his truck through their property, complained he damaged the crops, left a gate open, etc. Since we started this work there has been a decided change in the attitude of most of the people of this type. Recently, we have had occasions where people have gone out of their way to tell us we can store our mowing machinery on their property rather than transport it to some other place for over-night storage.

It is the kind of work that must be continued to gain results. You can't go out and make one contact and then forget about it. Once a year is not too often. The patrolmen should take every opportunity to see each resident in his section so that any unsatisfactory condition arising can be attended to promptly. On my part I have made many, and some very close, friends among the people living along the line. During the month of November I received a note from a family whose father had died and would be buried the following Friday. I ordered a spray of flowers sent

(*Continued on page* 51)

Advantages of 11-13-KV Class Radial Primary Distribution for New Urban Loads

By L. D. Cronin

Ebasco Services, Inc., N. Y.

An address presented before the Transmission and Distribution Committee Meeting at Atlanta, Ga., on Feb. 11, 1947

DOMESTIC and commercial uses of electric power have arrived at a stature where 4-kv and 2.3-kv primary distribution voltages are under considerable stress. Energy sales to small light and power consumers in 1946 had increased 48 per cent over 1940 and to residential consumers 65 per cent.

The national average kwhr residential consumption provides a good measure of the present trend and future possibilities. In 1938 this average was 853 kwhr; in 1942, 1022 kwhr; 1945, 1229 kwhr; and in 1946, 1327 kwhr. The accelerated rate is occurring notwithstanding the dearth of utilization equipment of practically all kinds.

In addition to this large load acceleration from conventional utilization, there is evidence of growing expansion of air conditioning and its extensive advent into the home. Summer air conditioning for a six to eight-room residence has a diversified demand of about 5 to 6 kw. In certain sections of the country where government hydroelectric power is plentiful, there is at present considerable agitation and some progress for electric house heating by resistance elements. In other sections serious effort is under way to effectively establish the heat pump and facilitate its multiplication. Resistance heating for a six to eight-room house has a diversified demand of about 7.5 kw from a connected load of about 17 kw. The heat pump diversified demand is from one-third to one-fifth of this for equivalent effect.

During the first few years of the lighting industry direct current at 125/250 volts did the distribution job. By about 1890 alternating current at 550 or 1100 volts came in for primary distribution. At the turn of the century this was being supplanted by 2200 volts. Another ten years and this 2200 was being wye connected for 4000 volts, which still is predominant.

For some time 4000-volt primaries have been encountering increasing pressure, and here and there various expedients have been undertaken for relief. Primary voltages of 6600 delta and later wyed for 12,000, for many years have been used for supplying industrial consumers, also for direct step-down to house voltage in many small crossroad villages and rural communities that initiated power service from transmission rather than a local generating station.

For at least 15 years Ebasco engineers have had frequent occasion to make system planning studies in cities and larger communities having distribution established mostly around 4000-volt primaries. The result often has been a program for bringing in higher primary voltage with cost savings and other benefits. Such a program usually has been based on holding 4000-volt primary capability within the capacity of existing distribution substations and developing either 12 kv or 13.2 kv for all excess load growth.

In a talk at the EEI Annual Meeting in June 1944, A. E. Silver gave a list of some urban communities served by Ebasco clients at 12 or 13.2 kv distribution. This list has been brought up-to-date and is here repeated, except, however, for three communities for which recent information has not been received. In all cases the load growth since 1944 has been substantial and in greater proportion on 11-13 kv. This list serves to show specific installations and indicates wide geographic distribution of the practice.

Benefits of 11-13.2 Kv

As to economy, benefits from 12 to 13.2-kv primary circuits occur in both lines and substations and include savings because of fewer circuits, less energy losses, lower investment in conductors, also individual circuit voltage regulators frequently are not required. These savings are partially offset by the higher cost of distribution transformers and accessories, although this cost increment is minimized by using phase to neutral transformers on 4-wire multi-grounded common neutral circuits.

From the angle of street congestion and public relations, the higher voltage primary has very definite advantage—fewer circuits mean less conductors on trunk lines and in the vicinity of supply centers, especially in situations where subtransmission transformer stations are eliminated. Some companies point to gain in quality of service resulting from flatter voltage profile. The percentage line drop at 12 kv is one-ninth of that at 4 kv for the same load, distance and circuit copper. In practice, of course, part of this advantage is delegated to higher loading, greater distance and smaller copper. Likewise, as in voltage drop, for the same loads, distance and conductor size energy loss at 12 kv is one-ninth that of 4 kv.

Safety records at the higher voltage have been excellent. Circuits at 12 kv

(*Continued on page 64*)

City or Town	Population*	Date Higher Voltage Distribution Was Started	Present Overhead Distribution System Load	
			Total	Portion at 12 Kv
Tyler, Texas	35,000	1928	12,100 kva	89% (1)
Nampa, Idaho	12,000	Over 12 yrs ago	6,417 kw	34% (2)
Twin Falls, Idaho	12,000	Over 12 yrs ago	6,931 kw	22% (2)
Little Rock, Ark.	88,000	1935	30,000 kw	83% (1)
Jackson, Miss.	76,000	1936	21,950 kw	74.5% (1)
Dallas, Texas	392,700	1937	83,700 kw	50% (1)
Fort Worth, Texas	220,000	1937	97,000 kw	37% (2)
Spokane, Wash.	150,000	1939	61,000 kw	20% (2)
Salt Lake City, Utah	170,000	1940	47,700 kw	13% (2)
Wichita, Kansas**	181,000	1940	44,900 kw	40% (1)

(1) 1947 estimated
(2) 1946 actual
* In some cases, 1940 census, in others estimated
** Total metropolitan area

Recent F.C.C. Actions on Mobile Radio and the Problems Facing Electric Utilities

By G. H. Underhill

E. E. I. Sponsor Representative on the R.T.P.B.

Abstract of a paper presented at joint meeting of Electrical Equipment Committee and Transmission and Distribution Committee, EEI, Atlanta, Ga., Feb. 12, 1947

AT THE OCTOBER 1946 meeting of the Transmission & Distribution Committee, Mr. E. D. Clatzel presented a report which discussed the Rules put into effect by the F.C.C. when they established a new Utility Radio Service in September 1946. That report contained a list of 17 new frequencies which could be temporarily used by the utilities pending the issuance of a final allocation plan. They were located in three parts of the spectrum, and the six in the 72-76 mc band had been made final on July 19, 1946.

Five days before the Virginia Beach meeting, the commission had issued a proposal for the final re-allocation of the 152-162 mc band and two weeks after that meeting, they issued a second proposal for the final re-allocation of the 30-40 mc band. The latter was modified as the result of an informal engineering conference, called by the Commission in December, and on February 3, oral argument on the modified version was held. This was followed on February 4 by oral argument on the 152-162 mc proposal. At these hearings there was substantially unanimous acceptance of both proposals. We may therefore reasonably expect that they will soon be issued as Commission Orders, perhaps before March 1.

In its revised form the 30-40 mc plan abandons the traditional interspersed pattern of assignments and substitutes a block arrangement. Specifically the plan assigns the utility service two blocks—one of 6 channels, 33.18 through 33.38 mc, and one of 11 channels, 37.46 through 37.86 mc. The total of 17 is 10 more than were allocated by the Commission's report of May 25, 1945; the increase being made to provide sufficient channels to make possible the formulation of a workable allocation plan in response to protests against the continued sharing of all channels by power, petroleum and other industries. Until the final plan is announced we therefore will not know how many or what frequencies will be assigned to the power utilities. It appears certain, however, that they will lie within the two blocks mentioned and the significant fact is that since neither block includes a presently occupied frequency, every power utility station operating in this band will have to change frequency.

Committee 4 gave long and serious consideration to the plan before committing the industry to so drastic a change and did so only in the conviction that the ultimate benefits will more than offset present expense and inconvenience. An interspersed plan is workable only so long as one service is able to use the adjacent channels of another service as guard channels. The police were able to do this successfully for some years, and only when the interspersed services began to saturate their channels did the present intolerable situation develop.

Under the block plan there are fewer neighbors, and coordination is largely confined within the Service. Furthermore, since the change appeared to be ultimately inevitable, it was obviously economical for a rapidly growing service to undertake it at the earliest possible date.

Both the Commission and the R.T.P.B. recognize that the transition will be difficult and that considerable interference may have to be temporarily tolerated. With a view to standardizing the most effective means of accomplishing the shift, a special committee of Panel 13 is studying conversion methods, and its findings will be made available as soon as released. It is expected that the local governmental services whose expenditures are controlled through annual budgets and appropriations, may retard the process and for this reason the Commission has proposed July 1, 1950 as the date when conversion must be complete. Many power utility systems can be converted much sooner. All but 3 of the 17 channels which might be allocated are now occupied by services which may be expected to move out promptly. Those three (33.22, 37.50 and 37.78 mc) are occupied by police systems—located principally in the Middle and North Atlantic states—and they may not be available in that area for some time.

Aside from the practical conversion difficulties involving crystals, antennas and time schedules, it is obvious that all present users face the question of "Who moves where?" Fortunately this is not complicated by a preceding query of "Who *stays* where?" There are some 4,000 licensed transmitters involved and the most casual consideration will indicate the impracticability of their reassignment by any national group, including the Commission. The Commission, of course, has the sole power of assignment, but there is a growing desire on their part to have questions and conflicts concerning frequency assignments settled within the service concerned; the Commission simply effectuating the recommendations of whatever duly constituted and recognized service organization has local jurisdiction. Such an arrangement has functioned with reasonable satisfaction in the police service for some years and its success is undoubtedly responsible for the Commission's suggestion that other mobile services should also organize to deal with their assignment and coordination problems as they arise.

The importance of this matter and the necessity for properly handling it on a regional or local basis, cannot be overemphasized. Too often has the selection of a frequency been left to well-intentioned but inadequately informed individuals, and many of us have witnessed or experienced the unfortunate results. Such methods are responsible in large measure for today's difficulties and they

must be supplanted by sound engineering if we are to benefit from the unusual opportunity to clean up a bad situation, which is provided by the Commission's allocation proposal.

The need for regional coordination was recognized some years ago, but the Pennsylvania Electric Association was probably the first group to take definite action on the matter. In March, 1946, that Association sponsored the formation of the Power Utility Radio Coordination Committee of Pennsylvania, which since that time has established contacts with similar committees of other services in the state, has developed assignment patterns for both the eastern and western divisions, and is now coordinating these plans with users in the adjoining states. Within a few days of the announcement of the final allocation plan by the Commission, Pennsylvania can be ready with an assignment pattern for all the power utilities in that state. An association similar to that in Pennsylvania, was subsequently formed in the Mississippi Valley under the sponsorship of Mr. C. M. Lytle, and on Friday, February 14, a meeting was held in Boston for the purpose of organizing an association which will cover New England.

To assist in this move Committee 4 has under preparation what might be called a "Guide Book" covering the formation, scope and duties of a generalized organization which it intends to distribute to those regional associations who desire to create radio coordinating committees.

The formation and sponsoring of such committees is complicated by the fact that in the eyes of the F.C.C. the power utilities are composed of all electric, gas, water and steam companies, regardless of whether they are privately, publicly or cooperatively owned. Just how these groups can be most effectively coordinated within a power utility committee, must be determined locally.

The job must be done, and done promptly, if order is to be brought out of confusion.

I have reviewed the need for regional coordinating groups before mentioning the Commission's proposal for reallocating the 152-162 mc band because that band is practically unoccupied and we consequently face no transition difficulties.

Instead of the 6 interspersed channels mentioned in Mr. Glatzel's report, the plan allocates to us 8-60 kc channels in two blocks; one of 3 starting with 153.59 mc and one of 5 starting with 156.99 mc. As in the 30-40 mc band, the 2 extra channels were added to accommodate the individual needs of the power, petroleum and other industries. Again, we do not yet know how many or what frequencies will finally be assigned, but they will be within the blocks mentioned.

Turning now from the matter of frequency reallocation, let us take up the question of channel use and occupancy.

Following the first commercial use of mobile radio by the police, its advantages have been increasingly apparent to the many companies and individuals who operate private vehicles on the land, sea and air highways of the nation. Prior to the development of commercial apparatus for operation on frequencies above 40 mc, the Commission refused to grant the requests of these potential users for channels, on the ground that all available channels were needed for the safety and emergency services. However, in 1945, with suitable apparatus commercially available, the Commission agreed to permit such use on an experimental basis. At the same time it established the policy that 3 methods of securing such service should be open to any applicant; and expressed its intention of making allocations accordingly. These methods are: (1) On a subscription basis from a common-carrier, (2) under an ownership sharing or facilities rental agreement; and (3) as the owner of an independent system. The communication companies, obviously aware of the tremendous revenue possibilities of the first method, also saw clearly that while channel allocation was the key to the situation, channel occupancy was the key to channel allocation. During the past two years they have accordingly made a determined effort to establish their own mobile service.

I should explain at this point that the telephone companies are offering two types of service, under both of which they will furnish, install and maintain all radio equipment required. The so-called "common carrier" type in effect makes each channel a party-line serving seventy-odd subscribers on a first-come, first-served basis. At the 1944 hearing when the Commission was considering the allocation of channels to a common carrier service, the telephone companies' witnesses testified that there was considerable interest in such a service among a number of classes of possible users, including some utilities. However, Committee 4 took the position in its testimony that the party-line common-carrier service would not meet the needs of the utility industry as a whole and urged that the utility radio service should be placed next to the safety services in priority. We emphasized that our emergencies occur without warning and that our channels must be instantly available to cope with them.

The second type of service offered by the telephone companies is a completely independent system which is furnished on a rental basis. The important point is that this type of system operates on power-petroleum channels and the power company is a licensee. The service rendered is equivalent to that of an independently-owned system and the choice between rental and ownership depends on the over-all economics in the specific case. The police of several states have entered into independent rental agreements of this kind.

The serious interest of the utilities in mobile radio is shown by the 250-odd independent systems now licensed on the power-petroleum frequencies, (See the accompanying list). Most of these are in the 30 to 40 mc band, where major experience in the past has been concentrated. It is important, however, that utilities whose situation is such that they can meet their needs in the 72 to 76 or 152 to 156 mc bands not neglect the advantages offered by these higher frequencies. Experience has well demonstrated that we must occupy the channels allocated to us or they will be given to someone else. An elaborate system is not required. An investment of not more than $2500—one fixed station and one mobile unit in a superintendent's car—may, in a critical area, mean the difference between the retention and loss of a channel. The stakes are high, the cost is trifling. If the decision were mine, it would not be difficult nor would it be delayed.

Engineers Seek Books, Funds, to Restore Technical Libraries Abroad

A NEW appeal directed to engineers all over the United States to contribute to the drive to help restore war-damaged or destroyed technical libraries in Europe, Asia and the Philippines has been issued by the Committee on International Relations of the Engineers Joint Council. Both money for the purchase of new books, and selected used technical books and periodicals are needed.

Checks should be sent to Mr. Joseph Pope, Chairman of the Book Commission, Engineers Joint Council, 29 West 39th Street, New York 18, N. Y. This fund is used to fill specified needs of the damaged libraries. Offers of books, containing lists by author and title, should also be sent there. The books themselves should not be shipped until full instructions are received.

Utilities Having Radio Licenses or Construction Permits

Electric, Gas, and Water Utilities and Petroleum Pipe Line Companies Having Radio Licenses or Construction Permits Under the Utility Radio Service or Special Emergency Service, as of December 15, 1946.

ALABAMA

Alabama Electric Co-op., Inc.
Birmingham Gas Company
Southern Natural Gas Co.

ARIZONA

Central Arizona Light and Power Co.
Westwood Water Utility Co.

ARKANSAS

Arkansas Power and Light Co.
Little Rock, City of
Oklahoma Gas and Electric Co.
Ozark Rural Electric Cooperative

CALIFORNIA

California Electric Power Company
Coast Counties Gas and Electric Company
Long Beach, City of
Los Angeles Departments of Water and Power
Modesto Irrigation District
Pacific Gas and Electric Company
Pacific Lighting Corp.
San Diego Gas and Electric Company
Southern California Edison Company
Southern California Gas Company
Southern Counties Gas Co.
Standard Oil Co. of California
Superior Oil Co.

COLORADO

Colorado and Southern Oregon Electric Co.
Colorado Interstate Gas Co.
Empire Electric Association, Inc.
Lamar, City of
San Luis Valley Electric Cooperative, Inc.
Southern Colorado Power Co.
Uncompahgre Valley Water Association

CONNECTICUT

Connecticut Light and Power
Hartford Electric Light Co.
United Illuminating Company

DELAWARE

Delaware Power and Light Co.

DISTRICT OF COLUMBIA

Potomac Electric Power Co.
Washington Gas Light Co.

FLORIDA

Florida Power Corp.
Florida Power and Light Co.
Jacksonville, City of
St. Petersburg, City of

GEORGIA

Georgia Power Company
Satilla Electric Membership Corp.
Southern Natural Gas Co.

IDAHO

Kootenai Rural Electric Corp.

ILLINOIS

Commonwealth Edison
Illinois Electric and Gas Co.
Menard Electric Cooperative
Natural Gas Pipe Line Co. of America
Panhandle Eastern Pipeline Co.
Springfield Department of Public Works
Texoma Natural Gas Co.

INDIANA

Boone County Rural Electric Membership Corp.
Carroll County Rural Electric Membership Corp.
Huntington County Rural Electric Membership Corp.
Indiana General Service Corp.
Indiana and Michigan Electric Co.
Indiana Service Corp.
Indianapolis Power and Light Co.
Jackson County Rural Electric Membership Corp.
Morgan County Rural Electric Membership Corp.
Northern Indiana Public Service Co.
Panhandle Eastern Pipeline Co.
Public Service Company of Indiana
Rush County Rural Electric Membership Corp.
Southeastern Indiana Power Co.
Southeastern Indiana Rural Electric Membership Corp.
Utilities District of Western Indiana
Wayne County Rural Electric Membership Corp.
White County Rural Electric Membership Corp.
Whitley County Rural Electric Membership Corp.

IOWA

Co-op. Electric Co.
Iowa Power and Light Co.
Natural Gas Pipeline Co.

KANSAS

Empire District Electric Co.
Kansas City Power and Light Co.
Kansas Gas and Electric Co.
Kansas-Nebraska Natural Gas Co.
Natural Gas Pipeline Co.
Panhandle Eastern Pipe Line Company
Union Gas System

KENTUCKY

Fleming-Mason Rural Electric Co-op.
Hickman-Fulton County Rural Electric Co-op. Corp.
Kentucky & West Virginia Power Co., Inc.
Kentucky Utilities
Louisville Gas and Electric
Tri-County Electric Membership Corp.

LOUISIANA

Central Lousiana Electric Co., Inc.
Claiborne Electric Co-op.
Concordia Electric Cooperative
Gulf States Utilities Co.
Humble Oil and Refinery Co.
Interstate Natural Gas Co.
Louisiana Power and Light Co.
New Orleans Public Service Co.
Pointee Coupee Electric Membership Corp.
Southwest Louisiana Electric Membership Cooperative
Superior Oil Co.
Texas Company, The
Texas Electric Service Co.
United Gas Pipe Line Co.
Washington-St. Tammany Electric Cooperative

MARYLAND

Atlantic Seaboard Corp.
Choptank Electric Cooperative, Inc.
Consolidated Gas, Electric Light and Power Co.
Washington Gas Light Co.
Washington Suburban Gas Company

MASSACHUSETTS

Boston Consolidated Gas
Boston Edison
Brockton Edison Co.
Cape & Vineyard Electric Co.
Central Massachusetts Electric Co.
Chicopee, City of
Fitchburg Gas and Electric Light Co.
Holyoke Water Power Co.
Lawrence Gas and Electric Co.
New Bedford Gas and Edison Light Co.
New England Power Company
Plymouth County Electric Co.
Western Massachusetts Electric Co.
Worcester County Electric Co.

MICHIGAN

Detroit Edison Company
Indiana-Michigan Elec. Co.
Michigan Consolidated Gas Co.
Panhandle Eastern Pipe Line Co.
Tri-County Electric Corp.

MINNESOTA

Douglas County Cooperative Light and Power Association
Freeborn-Mower Cooperative Light and Power Corp.
McLeod Cooperative Power Association
Minneapolis Gas and Light Co.
Northern States Power Co.
Rochester Electric Department
Stearns Cooperative Electric Association
Wright-Hennepin Cooperative Electric Association

MISSISSIPPI

Alcorn County Electric Power Association
Mississippi Power and Light Company

MISSOURI

Empire District Electric Co.
Kansas City Power and Light Co.
Macon Electric Cooperative
Panhandle Eastern Pipe Line Co.
Pemiscot-Dunklin Electric Cooperative
St. Joseph Light and Power Co.
Union Electric Company

MONTANA

Montana Power Company

NEBRASKA

Kansas-Nebraska Natural Gas Company
Natural Gas Pipeline Co.

NEVADA

California Electric Power Co.
Los Angeles Depts. of Water and Power

NEW HAMPSHIRE

Exeter & Hampton Electric Co.

NEW JERSEY

Atlantic City Electric Company
Public Service Electric & Gas Co.

NEW MEXICO

Albuquerque Gas and Electric Co.
Central Valley Electric Cooperative, Inc.
Colorado Interstate Gas Co.

NEW YORK

Adams Electric Light Co.
Brooklyn Union Gas Co.
Buffalo Niagara Electric Corp.
Buffalo Water Dept.
Central Hudson Gas and Electric Corp.
Central New York Power Corporation
Consolidated Edison
Home Gas Company
Iroquois Gas Corporation
Long Island Lighting Company
New York State Gas and Electric Corp.
New York State Natural Gas Corp.
Orange & Rockland Electric Company
Queens Boro Gas and Electric Company
Rochester Gas and Electric Corp.
Rockland Light & Power Co.
United Natural Gas Co.

NORTH CAROLINA

Carolina Power and Light Company

OHIO

Belmont Electric Cooperative
Cleveland, City of
Cleveland Electric Illuminating Co.
Columbus & Southern Ohio Electric Co.

Dayton Power and Light Company
Guernsey-Muskingum Electric Cooperative, Inc.
Midwest Electric Co-op, Inc.
Ohio Edison Company
Ohio Power Company
Ohio Public Service
Toledo Edison Company
Toledo Water Dept.

OKLAHOMA

Continental Pipe Line Company
Grand River Dam Authority
Interstate Oil Pipe Line Company
Kay Electric Cooperative
Natural Gas Pipeline Co.
Oklahoma Gas and Electric
Public Service Company of Oklahoma
Stanolind Pipe Line Company

OREGON

California Oregon Power Company
Eugene, City of
Northwestern Electric Company
Portland Gas and Coke Company
Portland General Electric Company

PENNSYLVANIA

Central Electric Cooperative
Duquesne Light Company
Metropolitan Edison Company
New York State Natural Gas Corp.
Pennsylvania Electric Company
Pennsylvania Power and Light Co.
Peoples Natural Gas Company
Philadelphia Electric Company
Safe Harbor Water Power Corp.
Southwest Central Rural Electric Cooperative
T. W. Philips Gas and Oil Company
United Natural Gas Company
West Penn Power Company

RHODE ISLAND

Blackstone Valley Gas and Electric Company
Narragansett Electric Company

SOUTH CAROLINA

Carolina Power and Light Co.
South Carolina Electric and Gas Co.
South Carolina Power Company
Tri-County Electric Membership Corp.

SOUTH DAKOTA

Black Hills Power and Light Company

TENNESSEE

Chattanooga Electric Power Board
Cumberland Electric Membership Corp.
Knoxville, City of
Memphis Light, Gas and Water Division
Middle Tennessee Electric Membership Corp.
Tri-County Electric Membership Corp.

TEXAS

B-K Electric Cooperative, Inc.
Beaumont Texas Water Department
Brazos River Transmission Electric Co-op.
Canadian River Gas Co.
Central Power and Light Company
Citv Public Service of San Antonio
Continental Pipe Line Co.
Dallas Power and Light Co.
Gulf State Utilities
Hill County Electric Cooperative
Houston Light and Power Company
Humble Oil and Refining Company
Hunt-Collin County Rural Electric Cooperative
Lower Colorado River Authority
Lower Colorado River Electric Cooperative Corp.
Magic Valley Electric Cooperative
Nueces Electric Cooperative, Inc.
Panhandle Eastern Pipe Line Co.
Perdenales Electric Cooperative, Inc.
San Bernard Electric Cooperative
Southwestern Gas and Electric Co.
Southwestern Public Service Company
Superior Oil Co., Inc.
Texas Electric Service Company
Texas Power and Light Co.
Texoma Natural Gas Co.
Warren Petroleum Corp.

VERMONT

Central Vermont Public Service Corp.

VIRGINIA

Appalachian Electric Power Co.
Godfrey L. Cabot Corp.
Rosslyn Gas Company
Southside Electric Cooperative
Virginia Gas Transmission Corporation

WASHINGTON

Everett Water Department
Lincoln Electric Co-op, Inc.
Northwestern Electric Company
Public Utility District No. 1
Puget Sound Power and Light Company
Seattle, City of
Stevens County Electric Cooperative, Inc.
Washington Water Power Company

WEST VIRGINIA

Appalachian Electric Power Company
Monongahela Power Company
Wheeling Electric Company

WISCONSIN

Clark Electric Cooperative
Crawford Electric Cooperative
Dairyland Power Cooperative
Grant Electric Cooperative
Jackson Electric Cooperative
Lafayette Electric Cooperative
Marshfield, City of
Northern States Power Company
Oakdale Cooperative Electric Association
Polk-Burnett Electric Cooperative
Trempealeau Electric Cooperative
Vernon Electric Cooperative
Wisconsin Electric Power
Wisconsin Gas and Electric Company
Wisconsin-Michigan Power Company

NOTE: The above compilation includes duplicate listings of some organizations which have been issued radio licenses in more than one state.

Total number of Organizations Licensed —246.

Prime Movers Committee Meeting

R. M. VanDuzer, Jr., *Chairman*

THE Prime Movers Committee met for a two days' session at the Hotel Van Curler in Schenectady on Feb. 3 and 4 with an attendance of approximately 75. One afternoon was spent visiting the General Electric shops and inspecting the manufacture of turbines and the Materials Testing Division.

The members of the committee had previously been requested to send in any questions relating to the design and operation of General Electric turbines and these questions were then transmitted to the General Electric Company. One morning session was devoted to the discussion of the various questions which had been raised. The General Electric Company had printed the questions and answers in a folder which was distributed to the members of the committee together with some other papers of general interest to power plant designers and operators, and a panel of their engineers discussed these questions and also answered further questions from the floor. This meeting was very beneficial to the members of the committee and was believed also helpful to the engineers of the General Electric Company, since a better understanding of the problems of design and operation and their solution was obtained and future trends in design were thoroughly discussed.

After hearing the various subcommittee reports, the committee recommended that investigation of graphitization encountered in high-temperature steam piping systems, which has been conducted for the past three years at the Battelle Institute, be continued on a much smaller scale in order to complete some of the long-time tests which are still in progress.

Inhibited turbine oils are still being investigated by the committee with the view of establishing tests to determine the amount of oxidizing inhibitors present in the oil, since these are readily removed by water and some types of oil filters.

The Round Table, which occupied one afternoon, covered, as usual, a wide variety of operating troubles and the means used by various member companies in overcoming them.

At the close of the meeting, Mr. VanDuzer announced that because of a special assignment which would require his absence from the country for an extended period, he was resigning as chairman of the committee. He then presented the gavel to the new chairman, Mr. G. C. Daniels.

Kite Flying Leaflet

MORE than 500,000 copies of a new leaflet entitled "So You Fly Kites," which describes the danger of kite flying with metallic string or wire, and which lists the ten-points of an "Expert Kite Flyer's Creed," designed for safer kite flying, have already been sold to electric power companies, the Accident Prevention Committee of EEI, has announced.

The leaflet, electric companies have found, effectively supplements the publicity programs on kite flying dangers now being sponsored by many companies, and has a very definite public relations and humanitarian value. It is intended to be of specific aid in reducing the number of accidents and outages occurring along power lines, which are due directly to kite flying with metallic or wet strings.

Major Electrical Connections of Latest Distribution Substations on Philadelphia Electric System

By E. B. Shew
Philadelphia Electric Co.

Presented at a Meeting of the Electrical Equipment Committee, EEI, Atlanta, February 13, 1947

THAT the individuality of the designer is reflected in his schemes is well known to all of us. In this respect, switching schemes do not escape the stamp of their creators. When the subject of switching schemes is discussed by members of several organizations, it is necessary to realize the varying historical backgrounds, character of system loads, management philosophies and policies and, as important as any other, personal likes and dislikes. The most that can be accomplished by discussion in such a group as this one, then, is to present what we are doing, how it is being done and why we are doing it that way. In this connection, it is believed by some that the "why" part is too often relegated to second or even third place by the "what" and "how" elements. While a certain amount of description is included in this discussion, it will be brief in order to allow more time for consideration of the "why." In so doing, it is hoped that you will be encouraged to reciprocate in the discussion period.

Evolution in Layout Schemes

When a layout is adopted, it represents the progress of the art up to that time; in a sense, it has been developing through all the preceding years until the selected plan is evolved. This process of evolution has been at work on all of our switching schemes from the beginning of the electrical industry. It is a slow process and new solutions are not produced in a short time, partly because every organization possesses a certain inertia that resists changes in the manner of conducting its business. The inertia is probably proportionate to the number of individuals that must be convinced, each from his own viewpoint, that the suggested change is an overall improvement. So there are many facets to the subject under discussion, influenced by complex forces, different in each company organization.

Recently, in contemplating the design for two classes of substations (one 13.2-2.4 kv, the other 66-13.2 kv), we endeavored to reduce the major connections and quantities of equipment to the simplest terms commensurate with the desired service reliability, operating convenience and economy. This was in spite of the progress in simplification already accomplished in past years. Each element in the circuit was subjected to rigorous examination to determine what would be sacrificed by its omission. The approach bears emphasizing: The question was "what can be done to eliminate it," not "why is the device needed."

Advantages in Simplicity

We agreed that simple connection schemes discourage operating errors by aiding quick, accurate decisions. The simpler scheme is easier to remember and to visualize and reduces the number of alternate set-ups which the operator must think about. Further, we agreed that a broad viewpoint is essential and that each group having to do with the operation of the scheme must be prepared to compromise.

We examined the number of disconnecting switches that had been provided in certain layouts and found that some could be omitted. It is realized that this device, whose main purpose is to isolate other equipment so the latter may be taken out of service, often requires additional outages for maintenance work on itself. In the new 66-13.2 kv substation, serious consideration was given to eliminating the 13.2-kv cable disconnecting switches. Agreement had been established when one of the interested groups pointed out that when "phasing out" cables, an open link is required at the substation end. Since we planned to use metalclad gear with draw-out breakers, this could best be provided by disconnecting switches and so it was decided to install them in this case. The important point is to note the agreement that this switch could be eliminated as an isolating device for normal station maintenance and inspection work.

It is a convenience to operators to have a potential transformer on each circuit which supplies, if nothing else, a pilot light to indicate whether or not the circuit is energized. In the case of the 66-13.2 kv substation, no other potential devices were required so that the potential transformers had to be justified by the need of a pilot light. Attention being focused on this device alone provided the necessary urge to obtain agreement on its omission. To determine whether or not a particular line is energized in this case, it will be necessary to know the position of the various switches in the line. For outdoor metalclad gear, the potential transformers require separate compartments in line with the breakers so there was a saving both in expense and in space required in addition to simplifying the circuit.

Avoid Duplication of Equipment

The relative reliability of various elements in the entire supply scheme was examined to determine whether or not these were in proper balance. For example, if a load is supplied by more than one service, it is not necessary to provide duplicate sets of station equipment for each of the two supplies in order to work on a breaker or other elements of the circuit. For this purpose we have been unfavorable to schemes employing by-passes since these are generally accomplished by the use of disconnecting switches which in themselves may cause trouble through improper operation and also they add complication to the circuit arrangement.

We have found that simple electrical connections permit orderly physical layout and it is usually possible to prepare a schematic electrical diagram that will very well illustrate the physical arrange-

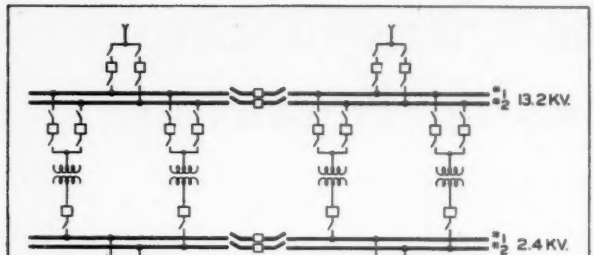

Fig. 1

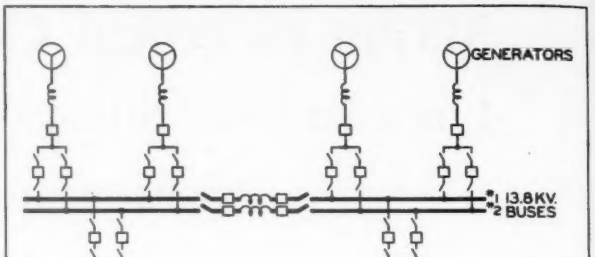

Fig. 2

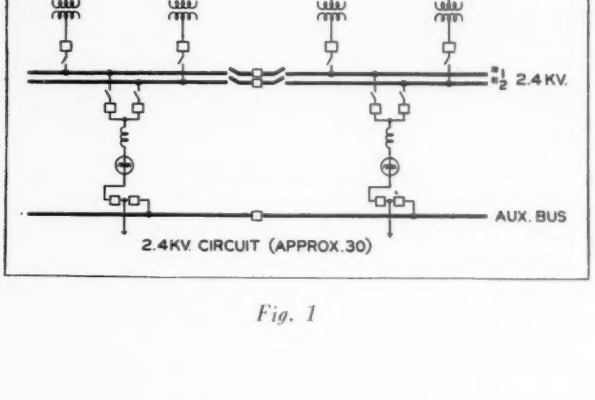

Fig. 3

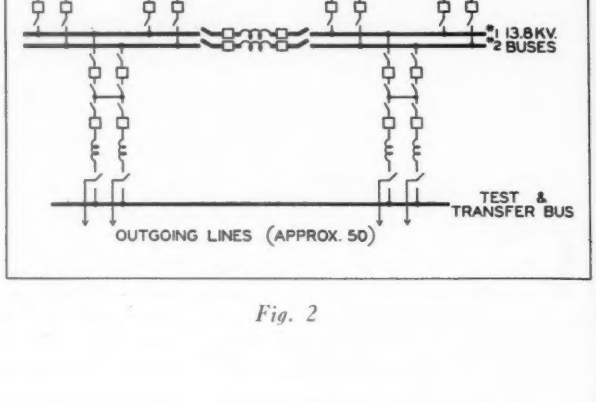

Fig. 4

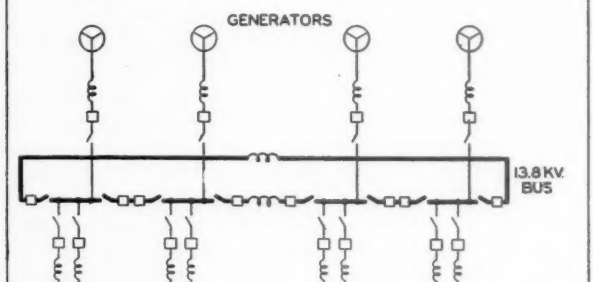

Fig. 5

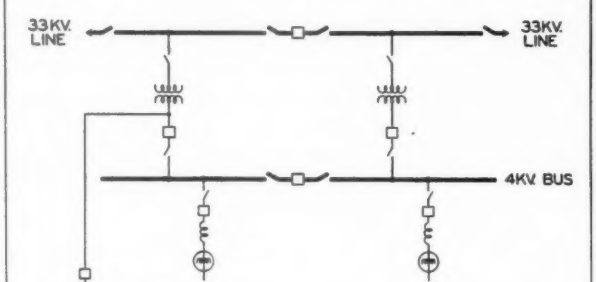

Fig. 6

ment of equipment at the same time. We consider this to be important as an aid to visualize and to remember specific layouts. The advantage of this during emergencies is obvious.

In the past we have insisted that switching schemes provide adequate flexibility, but a review of our experience shows that a high degree of flexibility is not always warranted. The additional equipment required to provide increased flexibility is used so infrequently that it may complicate the day-in and day-out switching operations to the extent that it becomes more of a liability than an asset. This facility must be coordinated with the general system arrangement and should be borne in mind in planning system additions so that a balance will be maintained between the station switching schemes and the general system plan.

In all of these considerations we have been influenced, of course, by the advances in the design and manufacture of electrical equipment. Circuit breakers were not always as reliable as they are today so that now we are more willing to depend on a single breaker rather than insisting on duplicate breakers for a single service.

The result of this philosophy is reflected in our latest switching schemes which have developed from double bus arrangements.

Fig. 1 shows typical major connections of our 13.2-2.4 kv distribution substations built from 1920 to 1932 to supply urban areas. Double buses and double breakers were provided on all circuits of both voltages. Beginning in 1914, the 13.8-kv buses in generating stations were arranged as in Fig. 2. This scheme has been called the "H" type of connection and is merely a variation of the double-bus, double-breaker plan. Four sets of disconnect switches are required in each circuit to provide adequate isolation of breakers for maintenance and inspection.

About 1938, consideration was given to modernizing our oldest generating station switchhouse. Impetus for the step was provided by rejuvenation of the generating equipment through the installation of a superposed unit. A critical examination was made of past failure to determine the optimum plan. Our analysis indicated that the following points were of prime importance: (a) adequate physical segregation, (b) elimination of flammable materials, (c) rapid removal of faults, and (d) simplicity in both electrical and physical layouts. In the present discussion, we are concerned primarily with the latter point. The simplified major connections that resulted are shown in Fig. 3 and since have been adopted in three other switchhouses. It will be noted that the number of disconnecting switches have been reduced to one-half.

Beginning about 1930 the load in the suburban territory required the addition of several new 33-4 kv substations. Since a number would be required, a standard substation was designed which could be erected anywhere in the suburban area. This was our first experience with single bus arrangements so far as general application was concerned. The major connection diagram in Fig. 4 was adopted. The transfer bus can carry one-half of the station load in case one section of the main bus is out of service. The success of this scheme led us to use it in 1941 in a substation near the border line between the urban and suburban territories so that one part of the substation supplies distribution circuits at 2400 volts, 2 phase, and the other part at 4000 volts, 3 phase. The essentials of the design in Fig. 4 were used. This was our first single-bus distribution supply center in the urban area.

We recently completed the design of a new type 13.2-2.4 kv urban distribution substation, two of which will be constructed in 1947. The major connections are shown in Fig. 5. It will be noted that the transfer bus is omitted although space provisions have been made for its addition if experience indicates its need. In lieu of a transfer bus, circuits will be paralleled in the street when necessary. We believe that the arrangement is the essence of simplicity and can see no reasonable way to eliminate any of the circuit elements. The switchgear is of the standard metalclad type located in a building. The main transformers are outdoor on one side of the building and the individual circuit regulators outdoor on the other side of the building.

A 66-13.2 kv substation is being planned for the Northeast section of Philadelphia and here, too, we strove to make the electrical and physical arrangements as simple as possible. The major connection diagram is shown in Fig. 6. The 13-kv switchgear will be the outdoor metalclad type with draw-out circuit breakers. Supervisory control will be installed, with an existing attended substation as the control point. Here again, we cannot find any element that reasonably can be eliminated.

The switching schemes and general arrangement of these two substations reflect our efforts over the years to achieve simplicity, economy and ease of operation. From our experience, we are convinced that simplification of electrical and physical layouts is complementary to good operation.

Public Relations Along the Right-of-Way

(*Continued from page* 43)

to the family and on the day of the funeral paid a visit. Since this was out in the country where it is customary for the deceased's family to feed visitors from any distance, it was, of course, insisted that I remain for lunch. In fact I was included in the immediate family circle for some special religious services which were conducted prior to the regular funeral service. While we were getting ready to eat lunch (28 people) one of the ladies came and whispered in my ear, "Mr. Mathers, Edna wants you to say Grace." Since that time I carry a number of cards with prayers for just such occasions.

Most of the credit for the success we have had with this program has been due to the excellent work done by our patrolmen. In fact it did not take me long in the very beginning to realize that the success of the whole plan depended on the attitude of the patrolman. It should be remembered that he lives in the same area as the residents, in a number of cases he goes to the same Church, his children attend the same school, and he deals at the same store. On several occasions people said that they would do little to help the company but they knew our patrolman, they liked him, they found him co-operative and for that reason we could count on them to assist us whenever the opportunity arose.

We feel it is our obligation, as well as our desire to be a good neighbor to the folks who live along our right-of-way. This can be attained only when there is consideration, co-operation, and mutual understanding among all concerned.

A Catalog of
E.E.I. Publications
is available upon request to
EDISON ELECTRIC INSTITUTE
420 Lexington Ave.
New York 17, N. Y.

Record-Breaking Attendance Expected at EEI Annual Sales Conference

THE Thirteenth Annual Sales Conference of the Edison Electric Institute, to be held in Chicago at the Edgewater Beach Hotel, on April 1, 2 and 3, will offer a program of rare interest and importance to electric utility commercial men. Hotel reservations forecast that the Conference will prove another record-breaker for attendance, with practically every state already well represented by Conference delegates.

The four EEI commercial sections will hold individual group meetings on Tuesday, April 1, with full day sessions scheduled. Many committee meetings will take place on Monday, March 31, and General Sessions are listed for Wednesday, April 2, and the morning of Thursday, April 3. The Conference will close with a luncheon session on April 3.

General Sessions Program

Ralph P. Wagner, Chairman of the Commercial Division General Committee, EEI, will open the General Sessions at 10:00 A.M., on Wednesday, April 2. A feature of the first morning session will be an address by John D. Gill, Economist, and a member of the board of directors of the Atlantic Refining Company, who will speak on Increasing Industrial Productivity.

The industry-wide Planned Lighting Program, which was recently announced by EEI, will be discussed by J. S. Schuchert, of the Duquesne Light Company, and Harry Restofski, of the West Penn Power Company, to close the morning session.

The heat pump, a subject of wide interest and increasing discussion throughout the industry, will be considered from the point of view of its possibilities as a loadbuilding appliance by A. C. Crandall, Vice-President of the Indianapolis Power & Light Company, at the beginning of the afternoon meeting. Speaking from personal experience, as a result of several test installations on his company's lines, Mr. Crandall should add greatly to his audience's knowledge of the heat pump.

The L-P gas program for 1947 will be presented by Howard D. White, Executive Vice President of the Liquefied Petroleum Gas Association. Mr. White should have a most alert group of listeners.

"The Farm Market and How to Reach It" is the title of an address by P. E. Miller, Director, Agricultural Extension, of the University of Minnesota, who will discuss the role of agricultural extension agencies in the power company's plans to increase farm electrification for bigger farm profits.

H. M. Sawyer, Vice-President of the American Gas & Electric Service Corporation, and Chairman of the EEI Prize Awards Committee, will make the presentation of the Thomas W. Martin Rural Electrification Award, for the company achieving the most progress in rural electrification during 1946, and the Laura McCall Award, for the home service department with the outstanding record during 1946.

Among the speakers who will be heard on the morning of Thursday, April 3, are E. W. Williams, Editor of *Quick Frozen Foods* magazine, who will discuss the potentialities of frozen food development to the electric industry, and Reynold R. Kraft, General Sales Manager, Television, of the National Broadcasting Company, who will describe the commercial opportunities in television for 1947—both subjects of wide interest to the industry.

Arthur R. Motley, President of *Parade,* a weekly magazine section widely used by newspapers, will also be heard in a discussion of public relations and advertising.

The Thursday luncheon session, which is the final event of the Conference, lists Pressly H. McCance, President of the Duquesne Light Company, and Don Mitchell, President of Sylvania Electric Products, Inc., as the featured speakers.

Both of these experienced and well-known executives will have messages of interest and importance to their audience, and their remarks will provide a fitting closing to what is confidently expected to be the most outstanding and best attended of all EEI Sales Conferences.

Section Programs

While details of most of the section meetings are not yet available, the Farm Section, under Chairman E. C. Easter of the Alabama Power Company, plans to devote much time to its recently developed program of in-service training in farm electrification for agricultural extension personnel, and other agricultural agencies. John L. Burgan, Chairman of the In-Service Training Committee, will be assisted by Russell H. Gist, of the Agricultural Extension Service, West Virginia, and J. B. Stere, of the West Penn Power Company, will discuss Farm Electrification training for Uo-Ag. groups. Among other topics included on the Farm Section program are a discussion of the adequacy of single phase service for farm operations by R. G. Walter, Chairman of the EEI Service Extension Committee, and an analysis of the work of a state Farm Electrification Council by L. L. Koontz, of Appalachian Electric Power Company.

The Industrial Sales Section, with Charles Snyder of the Monongahela Power Company serving as Chairman, will hear such important subjects as Improving Production Methods, More Effective Engineering, new data on the use of turbines in industrial plants, the place of industrial development in the power company, and other topics of wide concern to the industry, discussed by authoritative speakers during its all-day session.

The Commercial Sales Section, with E. B. Haskell of the United Illuminating Company and W. Grant Parry, of the New Jersey Power & Light Company, presiding over the morning and afternoon sessions, has scheduled outstanding authorities to discuss such subjects as Market Development, Utility Sales Organization and Procedure, Commercial Wiring, Street Lighting and others.

Special Events

Among the special events to be held at the Conference are a luncheon to be sponsored by the Farm Section, EEI, on April 1, which will feature L. J. Fletcher, Director of Training and Community Relations of the Caterpillar Tractor Company, as the speaker; a luncheon on April 2 under the auspices of the Public Utilities Advertising Association, with Robert Gros, Advertising Manager of the Pacific Gas & Electric Company, as the speaker; and a showing of the new Farm Journal film, "Singing Wires," the date and time of which will be announced at the Conference.

Joint Accounting Conference Will Provide Wide Variety of Important Subjects

THE 1947 annual spring Accounting Conference, which is jointly sponsored by the accountants of the electric and gas utility industries, will be held at the Hotel Statler, Buffalo, New York, on April 7, 8 and 9. An outline of the program appears below.

A joint Planning Committee is selecting a group of guest speakers to address the Conference on subjects of general interest to utility accountants. These speakers will be men of outstanding repute in their individual fields, and also of proven ability to deliver their messages effectively. The complete Conference program, with a roster of all speakers and their assigned subjects, will receive wide distribution well in advance of the Conference.

The various committees and sub-committees of the two industry accounting groups will have a great variety of important topics for presentation and discussion at their group meetings. These group sessions offer an opportunity to the utility accountant, both in hearing the latest developments in accounting techniques discussed by experts, and in learning how other companies are moving to solve many common problems.

An extensive accounting-machine exhibit, which will also be held at the Hotel Statler, will be of more than ordinary interest. Many new, if not revolutionary, devices are expected to be on display. A staff of manufacturers' representatives will be on hand, to answer questions and demonstrate the latest developments in accounting machines.

The Planning Committee is also scheduling some entertainment features for those attending the Conference. An informal dinner meeting on Tuesday evening, April 8, will be highlighted by musical and other entertainment. For those who so desire, there will be an opportunity on Wednesday afternoon, April 9, for a motor trip to Niagara Falls.

Official reservation cards have been distributed, and should be promptly mailed to the Hotel Statler. The Committee has been assured by the hotel of adequate accommodations for the maximum number expected to attend, on the basis of past experience. However, requests should be received by the hotel as early as possible, in order that preferred accommodations may be secured. The hotel also suggests that where possible, a double room be shared.

An accounting machine exhibit on the 17th floor of the hotel will be open to visitors beginning April 7 and lasting throughout the Conference. The latest developments in accounting machines and devices will be displayed. The manufacturers who have agreed to exhibit include:

Addressograph-Multigraph Corporation
American Perforator Company
A. B. Dick Company
Burroughs Adding Machine Company
Commercial Controls Corporation
Dictaphone Corporation
Friden Calculating Machine Company
International Business Machines Corporation
National Cash Register Company
Pitney-Bowes, Inc.
Remington-Rand, Inc.
The Todd Company
Rol-Dex Company
Elliott Addressing Machine Company
Telegas Corporation

TENTATIVE PROGRAM

General Session — 2 P. M., April 7

Opening Remarks
H. P. TAYLOR, Chairman, EEI Accounting Division

Address of Welcome
A. T. O'NEILL, President, Buffalo Niagara Electric Corporation

Addresses by guest speakers, names to be announced later:

The Accountant's Place in Management (A Challenge to Each of Us)

Employee Relations—Office Workers

America's Economic Outlook

General Accounting Activities Group — 9:30 A. M., April 8

Summarized Reports of Committee Activities
Depreciation Accounting
Plant Accounting and Records
Application of Accounting Principles
Standard Arrangement of Provisions in Mortgage Indentures
Uniform Classification of Accounts
Destruction and Preservation of Records

Micro Filming:
Discussion and demonstration by Ralph E. White, Assistant Manager, Photograph Records Division, Remington Rand, Inc.

Future Trends in Utility Accounting and Financing
Paul Grady, Partner, Price, Waterhouse & Company

Customers Accounting Activities Group — 9:30 A. M., April 8

Looking To The Future in Collections
C. E. ROWE, Consumers Power Company

Resume of "Wrinkles" Report
A. G. BURNETT, New York Power and Light Company

Reflecting Customer Attitude Accurately to Top Management
F. J. PORTER, JR., Consolidated Edison Co. of N. Y., Inc.

Meter Reading
W. R. SEIDEL, Rochester Gas and Electric Corporation

Accounting Records and Files—Panel Discussion
W. A. KELLY, (Leader) Consolidated Gas, Electric Light and Power Co. of Baltimore

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Materials and Supplies Committee (AGA) —9:30 A. M., April 8

Purchasing Operations

Salvage

Taxation Accounting Committee — 9:30 A. M., April 8

Round Table Discussion of Tax Problems and Recent Developments

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Customer Activities Luncheon Conference —12:30 P. M., April 8

(Tickets on sale at registration desk. Everyone interested is cordially invited to attend. *No speakers and no formal program.* Discussion meetings will resume following luncheon.)

Customer Accounting
Discussion Subjects: "Wrinkles" (With an exhibit showing specimens); Prorating of Irregular Period Billings.

Customer Collections
Discussion Subjects: Convincing The Public We Are Not "Pay Up or Be Cut Off" People; Collections Through Outside Service Groups.

Customer Relations
Discussion Subjects: Customer Attitude Toward Billing Without Meters; Customer Accounting Forms From a Customer Relations Viewpoint; Saturday Closing of Business Offices; Encouraging High Job Performance in Customer Contact Employees.

Materials and Supplies Committee (AGA) Luncheon — 12:30 P. M., April 8

(For committee members only)

General Accounting Committees — 2 P. M., April 8

Reports on Joint Subcommittee Activities

Machine Applications for General Accounting
New machine developments with a description of the machines, procedures and practices used in a recent major machine installation, giving particular emphasis to payroll and material accounting.

Budgets
Trends in budgeting procedure with description of the budgeting procedures of one or more companies.

Internal Auditing
Internal audit procedure, its relationship to other accounting work, and its correlation with audits conducted by public firms, with description of one or more companies' practices.

Functional or Responsibility Accounting
A definition of the terms and example of practices being followed by utility companies.

Materials and Supplies Committee (AGA) — 2 P. M., April 8

Report of Stores Operations Subcommittee

Report of Stores, Equipment and Building Subcommittee

Taxation Accounting Committees — 2 P. M., April 8

Address — (Subject to be announced) by Thomas N. Tarleau

Depreciation Accounting Committee (EEI) — 2 P. M., April 8

The Simulated Plant Record Method of Determining Past Life and Mortality Dispersion from Plant Records
A. E. BAUHAN, Public Service Electric and Gas Co.

The Effects of Dispersion in the Depreciation Problem
W. B. CARR, Buffalo Niagara Electric Corp.

Plant Accounting Committees — 2 P. M., April 8

Coordination of Property Records with General Accounting, Operations and Engineering Activities
General Discussion

Accounting for Salvaged Equipment and Major Spare Parts Items
E. D. KING, The Detroit Edison Co.

Dinner Session — 7 P. M., April 8

Accounting for Accountants
A criticism and appreciation by a speaker who knows his stuff.

General Accounting Subcommittees — 9:30 A. M., April 9

Open meetings for discussion of reports submitted Tuesday afternoon, and related topics.

Machine Applications for General Accounting

Budgets

Internal Auditing

Functional or Responsibility Accounting

Licensed Projects Accounting and Reporting

Customer Activities Accounting Group Meeting — 9:30 A. M., April 9

Write As You Talk—Customers Like It
C. L. SULLIVAN, Peoples Gas Light & Coke Co.

Pay Station Arrangements for Customer Convenience
Speaker to be announced

Developments in Office Devices and Equipment
Interim report by J. H. W. ROPER, Washington Gas Light Co.

Demonstration of Magnetic Recording
Armour Research Foundation of Illinois Institute of Technology

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Materials and Supplies Committee (AGA) — 9:30 A. M., April 9

Stores Accounting

Use of "Standard or Trial Unit Costs" on Distribution Plant

Taxation Accounting Committees — 9:30 A. M., April 9

Round Table Discussion of Tax Problems and Recent Developments

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Plant Accounting Committees — 9:30 A. M., April 9

Simplification of Continuing Property Records

Individual Committee Meetings — P. M., April 9

Tour of inspection of Accounting Departments of local public utilities. Trips by car or bus to Niagara Falls may be arranged for those who so desire.

H. Hobart Porter

HENRY HOBART PORTER, Chairman of the Board of the American Water Works and Electric Company, and a member of the Advisory Committee of the Edison Electric Institute, died on February 9th after a long illness at his home in New York.

MR. PORTER

Mr. Porter was born in New York City on March 12, 1863. He received his education in local schools and in 1886 was graduated from the Columbia University School of Mines.

He taught geology there for a year after graduation and then spent some years in Mexico, Arizona and other Southwestern States to gain practical experience in silver mining engineering.

In 1894, with the late E. N. Sanderson, he founded the engineering firm of Sanderson & Porter, from which he retired a few years ago after almost fifty years of active association. Mr. Porter was elected president of the American Water Works and Electric Company in 1914, an office he held until 1937, when he was appointed board chairman.

In an interview twenty years ago Mr. Porter recalled what he termed the "outstanding case" that eventually brought him the presidency of that company. His engineering firm was called in as a consultant after the company had failed, he explained. It made a thorough investigation and a subsequent report, recommending how it felt reorganization of the irrigation and other water works plans should be carried out.

The reorganization committee, which had selected his firm to furnish suggestions, put it to a test in carrying them out successfully and he later became president of the utility.

Mr. Porter supervised the planning and construction during the first World War of one of the first large mine-mouth power generating stations at Springdale, Pa., which has since increased its capacity enormously to meet increasing demands of industry and the public.

He early recognized the inherent values in the inter-connection of large, efficient power-generating stations and the soundness of his reasoning would appear to have been borne out during the recent war, when large amounts of power were made available to munition and other war plants without necessity of curtailment.

He served on many directorates, especially in the transportation field. In 1930 he was called upon to head the Engineering Foundation, which at the time was initiating a five year research program into iron and its alloys. The foundation was financed by approximately sixty associations, companies and scientific groups.

He was a life trustee of Columbia University, a member of the board of managers of the New York Botanical Garden and a member of various engineering societies. He held the honorary degree of LL.D. from Hobart College and Doctor of Engineering degree from Rensselaer Polytechnic Institute.

Besides being a director of the American Water Works, he served as such for the Chemical Bank and Trust Company, the Mercantile Insurance Company of North America, the North British Mercantile Insurance Company, the Hudson and Manhattan Railroad and United Stores Corporation.

Accident Prevention Committee Meeting

D. C. Stewart, *Chairman*

THE thirty-fourth meeting of the Accident Prevention Committee was held on Feb. 6 and 7 at the Henry Grady Hotel in Atlanta, Ga., with about 40 members and guests in attendance.

For the past five years analyses of fatalities occurring in the industry have been prepared annually and published together with pertinent comments in the EEI BULLETIN. The greater mass of data now available from a total of 557 fatalities over the entire five-year period permits different types of analyses to be made and the chairman presented several of these new analyses which have been completed to date.

A consolidated analysis for the entire period classifies fatalities by location and type of accident for each year and for the entire period. This shows that the number of body contacts is consistently high and that there is an encouraging decreasing trend in fatalities due to gaff cutouts and those incurred while stringing or removing conductors. A new type analysis shows the distribution of fatalities by occupation and type of accident. This is divided into three categories—transmission and distribution, production and generating plants, and commercial and miscellaneous. There were 472 fatalities in the transmission and distribution category. Linemen accounted for 261 cases while electric shock and burn was the most prevalent type of accident with 387 cases. Electric shock and burn to linemen alone totalled 225. The production and generating plant category accounted for 74 cases. There was no outstanding occupational group or type of accident, although falls led the list with 19 cases. There were only 11 fatalities in the commercial and miscellaneous group and motor vehicles accounted for eight of these.

Another analysis showing the distribution of fatalities by age indicates that the 40-45 year group leads the list. An analysis showing the distribution of fatalities by months of the year indicates there is a marked peak during June and July for electric shock and burn fatalities while no seasonal tendency is apparent for all other types. Analysis by hours of the day refutes a popular conception that most fatalities occur during the first hour of work. The peak appears for the hour 9 to 10 a. m. Another analysis shows the distribution of fatalities by years of service with the company and by years of experience at the kind of work being done at the time of the accident. One hundred twenty-six out of 503 cases where this type of data was available occurred to men with less than four years of service and less than four years of experience. There was also a significant hump in the 15-19 year group in both years of service and years of experience. The opinion was advanced that this may be due to the acceptance of more hazardous work at this time or an over-confident feeling of mastery of the job.

E. J. Kreh presented preliminary accident-experience data for 1946 obtained from 25 of the companies represented on the Accident Prevention Committee. Comparative figures for the same companies for the last year follows:

	1945	1946
Total Manhours ...	163,345,446	179,646,889
Number of Fatalities	34	20
Frequency Rate....	11.34	12.00
Severity Rate	1.65	1.06

The companies included above account for about 35 per cent of the total manhours represented in the complete annual report and the marked decrease in fatalities is promising.

W. E. Mitchell, President of the Georgia Power Company, addressed the committee pointing out that the magnitude of the job of accident prevention appears staggering when viewed on a nation-wide basis where an average of about 110 fatalities occurs annually in the industry. However, when this is broken down into individual company experience and into divisions within the company, the means to cope with this problem become more tangible. He emphasized the importance of having men who believe in safety and who are enthusiastic about it; the necessity for providing safe working conditions and the need for initial and continuing safety training. He referred to the experience of his own company where the number of fatalities has been reduced steadily over the last 20 years by the continual application of these principles. He pointed out that the company-wide instruction in pole top resuscitation already has been responsible for saving three lives. In closing, he remarked that he preferred to think of "conservation of manpower" rather than "accident prevention."

The Chairman announced that the draft of the second in a series of accident prevention manuals entitled "Application and Care of Rubber Protective Equipment" has been completed and is ready for review by committee members prior to printing. The first of this series, "The Use and Care of Pole Climbing Equipment" is now being printed.

William N. Cox, head of the Department of Safety Engineering, Georgia Institute of Technology, explained the recent organization of his department which was the first of four now established at colleges throughout the country. Most of the work offered is in the post-graduate field; however, a program is now in progress to analyze undergraduate courses involving laboratory work in an effort to make a few adjustments in the laboratory procedures to emphasize safe practices.

The need for education of independent operators of transportable booms, hay racks, and similar vehicles was discussed and a subcommittee was appointed to investigate possible means of promoting greater caution on the part of these operators when in the vicinity of power lines.

The accident prevention sound slide film on station accidents entitled "Snake Eyes" was shown as revised, in accordance with suggestions made at the last meeting. This film will be released as soon as arrangements for reproduction are completed.

On behalf of R. P. Douglas, J. B. Porcher reported that the proposed questionnaire on transformer-tank grounding practices has been revised and is now ready for distribution.

W. R. Smith presented a preliminary review of a complete study of Edison Medal Award case histories now under preparation. An interesting revelation was the large percentage of pole-top resuscitations in spite of the fact that this technique was not available until several years after initiation of the Edison Medal Award.

At the last meeting of the committee, G. S. Diehl reported the failure of six

out of 12 tower ladders which were subjected to an improvised load test and indicated the need for a standard proof test for ladders. Since that time he has collected data on proof tests which are used by individual companies and he presented a consolidated report on information assembled to date.

Electrical Equipment Committee Meeting

C. A. Corney, *Chairman*

THE forty-first meeting of the Electrical Equipment Committee, held at the Atlanta-Biltmore Hotel, Atlanta, Georgia, February 12 and 13, was attended by 75 members and guests.

An interesting program covering a variety of subjects was presented at a joint session on Wednesday morning, with the Transmission and Distribution Committee. On behalf of H. P. Seelye, A. H. Kidder briefly reviewed the progress of the Joint EEI-N.E.M.A. Committee on Preferred Voltage Ratings of A-C Systems and Equipment. Comments which have been received to date concerning the "Preliminary Report on Preferred Voltage Ratings for A-C Systems and Equipment," for voltages above 15 kv, dated December 1946, were summarized. Members of the committees were urged to send in any comments they may have on this report by April 1 so that they will be available at the next meeting of the Joint Committee.

H. P. St Clair gave a discussion of the procedure used by the Joint Committee in arriving at recommendations for preferred transformer voltages and taps as shown in the preliminary report. Charts of operating voltage ranges and the transformer voltages and taps of the various operating systems, prepared from information obtained through questionnaires were presented. The voltages and taps recommended in the preliminary report were selected to meet the requirements of the largest possible number of users.

On behalf of F. A. Lane, I. W. Gross gave a discussion of progress with the heat-pump development. Several meetings have been held with representatives of operating utilities to discuss means of coordinating research on the heat pump. This group is planning to prepare an informal report outlining research required on this equipment. The demand and load factors of the heat pump in different parts of the country are under study.

Dr. M. S. Viteles gave an interesting discussion of "Selection and Training of Personnel." He presented results obtained through the use of psychological tests and allied techniques, in addition to traditional interviews, in selecting personnel. These tests were indicated as being of considerable value in shortening training time, decreasing the number of errors and accidents, reducing labor turnover, and increasing the proportion of qualified men selected. As an example, he indicated that in one company four years after the installation of psychological test program for selecting substation operators, operating errors were reduced from 36 to 12 per year. In another case the number of unsatisfactory apprentices dropped from 40 per cent to 17 per cent. A group of tests for certain jobs worked out for one company would not necessarily be applicable to another company, because of differences in the duties required. Each job should be studied and proper tests prepared, based on the results. These tests do not guarantee 100 per cent results but a preponderance of evidence indicates that a definite improvement is obtained through their application.

G. H. Underhill, member of Committee 4 (Power Utility Committee), Panel 13, Radio Technical Planning Board, reviewed recent Federal Communication Commission action of interest to electric utilities. Recent hearings before the F.C.C. on the 30 to 40-mc and 152 to 162-mc frequency allocation indicate that power utilities will probably receive two blocks of frequencies rather than interspersed channels, in each of these bands. These will be in addition to the previously allocated blocks in the 72 to 82-mc band. No power utilities are now using any of the frequencies being considered for assignment to them in the 30 to 40-mc band. Therefore, all utilities now licensed in this band will be required to move to the final frequency assignments within a time to be specified by the F.C.C. The need for regional coordinating groups to facilitate the shift in frequencies, as well as to allocate the new frequency assignments, was emphasized. He pointed out that for these regional groups to be of maximum benefit, they should be organized before the final frequency assignments are issued the the F.C.C. The Pennsylvania Electric Association has organized a Utility Radio Coordinating Committee, and a similar group has been organized in the Missouri Valley and one is being formed in New England. Committee 4 is preparing information concerning the organization and functioning of such regional groups which will be available in the near future.

Mr. Underhill emphasized that for the utilities to retain the frequency channels allocated to them, they must be utilized. If not, some of the channels may be allocated to other services, which will be able to show a real need for additional ones.

W. J. Lyman presented a paper entitled "Developments of Standards for Service Continuity." The standards developed were based on past performance as tempered by customer reaction and other considerations, and are not the same for all classes of customers. They are divided into low tension and high tension customers, depending on the voltage at which they are supplied. The duration and frequency of interruptions are both necessary in defining service reliability. The standards developed by his company are aimed at decreasing costs by recognizing that the more reliable equipment now available decreases reserve requirements and the need for duplicate circuits.

Following the joint session the customary closed session of the committee was held. This session was devoted to a round table discussion of apparatus troubles, oil fires, new design features of rotating machinery, and new equipment purchases.

B. S. Rice gave a discussion of "Load Control and General Operating Practice of the Niagara-Hudson System." A Load Committee consisting of representatives of the primary interconnected companies was formed that issues principles and procedures to obtain maximum efficiency in the operation of the interconnected system. Tie-line bias control is used exclusively and is providing satisfactory control of loads and frequency. Cost of power delivered at the loads is of controlling importance in scheduling load on the system. Generation costs and

transmission losses, therefore, both need to be considered. A "Transmission-Loss Slide Rule" was developed, and through its use, the load supervisor can readily schedule load for maximum economy.

"Some Aspects of System Planning in Georgia," was the subject of a paper presented by R. O. Loomis. The functions of the various departments of a company in system planning for load growth were described. To provide additional capacity for indicated load growth, requires a study of generating, transmission, and distribution facilities. Fuel costs, generating plant costs and location in relation to load, and reliability are also important factors.

"Operation and Maintenance of Control Batteries for Small Substations," was the subject of a paper by A. M. McCabe. Control batteries render important services in times of emergency and to insure their availability at such times, careful maintenance and inspection is required. The voltage, capacity and type of batteries to be used in particular situations depend on the type of operation required. Maintenance procedure for batteries in both attended and unattended substations was outlined. The advantages and disadvantages of cyclic, floating and automatic type of chargers were discussed.

E. B. Shew presented a paper describing "Major Electrical Connections of Latest Distribution Substation on Philadelphia Electric Company System." By means of one-line diagrams, the design of electrical connections of substations over the past twenty years were described. The changes in electric connections over this period reflect the trend of thought towards simplification based on improvements in electrical equipment. The earliest type of substations used double buses and auxiliary buses, with a corresponding large number of circuit breakers. The design of the latest substation uses a single bus with no auxiliary bus and the minimum number of circuit breakers.

S. C. Townsend gave the results of a "Survey on the Use of 4,000 Volts for Auxiliary Power Supply." The results of the survey indicated that relatively few stations use 4,000 volts for auxiliary power supply—most companies using 2,400 volts or below. The higher voltage was considered necessary to simplify the circuit-breaker requirements in a new station of his company which will use anthracite fuel and thus require relatively large auxiliary loads. A comparison of estimated cost of 2,400 and 4,000 volts for the power supply was made which indicated that the 4-kv supply was slightly more expensive.

On behalf of E. A. Hester, W. J. Lyman presented a discussion of "Operating Problems Incident to Recent Power Strike in Pittsburgh." Advance planning for this type of emergency operation was indicated as being of considerable value in minimizing disruptions of service.

A report on activities of interest in Canada was presented by A. E. Curtis, on behalf of W. R. Way. Gas detector relays for transformer protection are widely used, and in some cases have given protection when other protective devices have failed. Considerable progress in standardizing transformer bushings up to 69 kv has been made.

Transmission and Distribution Committee Meeting

L. R. Gaty, *Chairman*

THE forty-second meeting of the Transmission and Distribution Committee was held on February 10, 11 and 12 at the Atlanta-Biltmore Hotel, Atlanta, Georgia, with 175 members and guests in attendance. The session on the morning of the third day was held jointly with the Electrical Equipment Committee, and is reported in the accompanying story on that committee.

R. R. Habberley, Standards and Specifications Group Sponsor, led a brief discussion concerning the proposed revision in the design of joints for fiber conduit which will shorten the length of couplings and still meet current strength specifications. He also reported good response to a questionnaire to be used as a basis for joint EEI-NEMA distribution-fuse standards and gave a summary of the data received. Considerable interest in a transformer fuse which would approach the ASA Time-Load Curve for transformers was indicated.

Progress in the preparation of specifications for secondary racks, steel insulator pins and clevises and on the joint EEI-NEMA standard mounting bracket for distribution-fuse cutouts and distribution type lightning arresters was reported by E. H. Kendall, Chairman of the Line Hardware Subcommittee.

G. H. Fiedler and L. F. Heckmann reported substantial progress in the standardization of street-light posts and brackets.

A. E. Silver reported that the EEI-NEMA Joint Committee on Standards for Distribution Transformers is making good progress on a supplement which will revise its second and third reports to include single and three-phase transformers up to 500 kva.

F. A. Ashbaugh, Chairman of the Timber Products Subcommittee, indicated that the subcommittee is directing its chief effort toward the problem arising from shortages, particularly those of crossarms. L. J. Jacobi presented a proposed revision of specifications for untreated Douglas fir crossarms in an attempt to reconcile the specifications to the grades of timber now available. T. A. Wilson presented a preliminary report on a survey of the species, size, class and preservative treatment of poles and crossarms purchased during 1946. He emphasized the need for specifications for the non-pressure treatment of some of the newer species such as larch and lodgepole pine and the need for more complete standardization of crossarm cross sections. A total of 26 different cross sections were reported and only three of these were of standard lumber dimensions although these three include the majority of crossarms purchased.

A variety of subjects was presented by the Overhead Group under the sponsorship of H. E. Stites.

A paper describing an improved means for locating ground faults on overhead circuits prepared by Stephen Freeman, Jr., and Henry Haas, was presented by Mr. Freeman. This method operates by detecting the unbalanced charging current which flows through the grounded phase conductor of a normally ungrounded circuit. The method can be adapted with some modifications for use on multigrounded neutral circuits. Equipment required consists of standard production capacitors and a detector consisting of a statically shielded loop and an amplifier, which may be tuned to 60 or 300 cycles, incorporating an output microammeter.

Carl Asplundh of the Asplundh Tree Expert Company presented a movie showing a number of new mechanical

devices in use or under development for more efficient tree trimming and right-of-way clearing.

A report on experiments with the chemical sterilization of rights-of-way by C. T. Malloy was presented by L. F. Hunt. A large number of chemicals tested in varying climates, soils and vegetation revealed that borates were the cheapest and most satisfactory.

A Dow Chemical Company movie describing the use and effectiveness of various chemical selective weed killers on different types of vegetation and in different parts of the country was shown.

E. S. Mathers described an interesting experience in public relations resulting from a program to have residents along transmission lines report weather conditions during the winter season.

E. W. Hatz described operating experience with fatigue failure of overhead ground wires from which it was concluded that the principal consideration is wire tension. A limiting tension of 25 per cent of the ultimate strength under no-load conditions at the lowest prevailing temperature in the locality is indicated.

A. E. Silver reviewed the status of joint EEI-Bell System activities and indicated that the joint report on cooperation in emergencies has been completed and will soon be available. T. A. Taylor of the American Telephone and Telegraph Company then described the status of development and application of carrier telephone on rural power lines. An exhibit including a model pole showing typical carrier attachments and a table display of all carrier telephone components was available for inspection by the committee.

The program of the General Engineering Group sponsored by T. J. Brosnan was devoted chiefly to fundamental considerations of system design.

E. V. Sayles recalled the increasing attention to distribution problems in the last decade, including the shortening of feeders, increase in voltage and conversion from delta to wye connection all in order to increase capacity. With the industry faced with the need for providing still greater capacity the next step appears to be the addition of more substations supplied by a sub-transmission system superimposed on the distribution system.

G. E. Dean discussed the application of unit-type substations to his company's system. Formerly, custom-built substations supplied by untapped transmission lines were used exclusively. However, the high reliability of substation transformers and improved design of fuse-type circuit-interrupting devices has modified this principle and a number of unit-type substation installations are now planned where economically advantageous, and where the same reliability of service can be maintained.

H. W. Grate presented a paper by W. R. Weise describing how system design can be advantageously controlled by a system planning committee wherein factual data and engineering studies obtained by various intra-company groups and divisions can be developed to steer a sound and economic course for system expansion.

The relative advantages of 4-kv versus higher voltages for urban and rural distribution was the subject of three papers. L. G. Smith outlined a number of factors which should be considered when selecting a primary voltage. He emphasized that urban and suburban areas between downtown and rural districts require the most serious consideration since most downtown areas can be served adequately for several years by existing low voltage networks and rural areas usually require individual consideration. H. J. DeBaun briefly described the distribution system in the Long Island Lighting Company territory and indicated plans for the application of higher voltages in certain areas. L. D. Cronin outlined the savings in both lines and substations resulting from the use of 12 to 13.2-kv circuits. These savings are a result of fewer circuits, smaller energy losses, lower investment in conductors and the reduced use or elimination of voltage regulators. These advantages are partially offset by the higher cost of distribution transformers, although this may be minimized by using phase-to-neutral transformers on four-wire multigrounded circuits. Safety records on the higher voltage circuits are excellent, possibly because they are handled with hot-line tools rather than rubber gloves. These lines also relay out considerably faster than at 4 kv.

Recent developments in low-voltage network design were described in four papers. J. E. McCormack related the evolution of the present network system in New York City. Generating stations connected by tie lines each now feed individual sections of the 4-wire, 3-phase, 120/208 volt a-c, network grid which are separated electrically. Limiters are being used successfully to restrict damage to faulted sections. Gasketed submersible transformers are being replaced by welded type and the 500-kva size is now standard. Double sets of 4/0 cables for network mains are being adopted instead of single sets of 500 MCM cables. No restriction on the size of air conditioning motors has been required to date. J. A. Pulsford explained that his company serves 85 business zones by means of low-voltage networks and that 61 of these systems have demands of less than 2,000 kva. Networks have been chosen for these areas chiefly because of service reliability and he made a plea for a more united approach to the problem of small underground systems so that the advantages of standardization and mass production will permit these business areas to be served as economically by networks as by any other means. P. B. Boyd described plans for a 550-volt network installation in the downtown area of Atlanta to supply air-conditioning customers with combined lighting and air-conditioning demands in excess of 2,000 kw. H. H. Graley outlined plans for converting the present radial underground distribution system in Syracuse to a network system by a gradual process of interconnection.

H. C. Bingham described a method of designing secondary distributions developed for use by non-technical men.

H. J. Scholz reported further progress with rural long span joint use. 75 miles of completed construction in the Commonwealth and Southern Corporation—Southern Bell Telephone area indicate that substantial savings can be realized where existing power lines are modified for joint use.

The afternoon session on February 11 was devoted to the Underground Group sponsored by M. W. Ghen.

P. B. Boyd described the installation of a 110 kv oil-filled, pipe-type cable connecting two substations about 5 miles apart in Atlanta. The cable was placed in operation late last year and a movie depicting all phases of construction was shown.

W. A. DelMar and K. S. Wyatt of the Phelps Dodge Copper Products Corporation, G. B. Shanklin of the General Electric Company, R. J. Wiseman of the Okonite Company and L. F. Hickernell of the Anaconda Wire & Cable Company each described latest developments in cables and cable systems. A. D. Pettee of the General Cable Corporation presented a discussion on insulating oils.

The five-year operating and maintenance record of a 120-kv pipe-type, gas-filled cable installed in Detroit was presented by L. I. Komives. Extra pre-

cautions in the testing of the pipe and welds in place has paid dividends. After repairing a few small leaks discovered after installation there have been no leaks in the pipe line proper. However, some difficulty has been experienced with the terminals.

J. A. Pulsford presented a paper by T. E. Starrs describing a differential pressure gauge used for adjusting volume after oil sampling, recalibration of reservoirs, temperature surveys and leak checking on balanced pressure reservoirs in a 132-kv oil-filled cable system.

J. J. Pokorny described cradle-type fixtures used for the installation of normal and stop joints in a 3-conductor, 66-kv oil-filled cable.

Tabulation of the 1945 Cable Operations Report has been completed and E. F. Nuezel presented a preliminary summary of the report. The cable trouble rate decreased from 6.9 in 1944 to 6.8 in 1945 while the joint trouble rate increased from an all-time low of 1.1 in 1944 to 1.5 in 1945.

Meter and Service Committee Meeting

W. G. Knickerbocker, *Chairman*

THE Thirtieth Meeting of the Meter and Service Committee of the Edison Electric Institute was held in Newark, N. J., on Feb. 10 and 12. On Feb. 11 the Committee on Metering & Service Methods of the Association of Edison Illuminating Companies was in session.

There are now thirty-one regular members, four Sectional Correspondents, and thirty-seven Corresponding Members on the Committee. This wider coverage of our industry is desirable as it enables the Committee to keep those engaged in metering up-to-the-minute on what progress is being made in the art.

The Code for Electricity Meters (ASA Standard C-12) is up for revision and while there is an opportunity it is proposed that definitions appearing in the Code, in AIEE Standard C-42, and in the Handbook for Electric Metermen, be made the same wherever possible. The basic essential markings on the nameplates of watthour meters have been agreed upon and the subject has been referred for printing as a Specification, likewise the Specification, "Marking and Arrangement of Terminals for Phase Shifting Devices" used in Metering (MS-6) is now in print and available from Institute Headquarters.

Good progress was reported on the revision of the Handbook for Electric Metermen though there are some points of policy, such as the size of the volume and the amount of general theoretical material to be included, not yet cleared up. It is the aim of the Committee to produce a reference work which will, so far as practicable, meet the needs and suit the desires of the users.

Substantial progress was reported on other subjects, one in particular coming in for rather lengthy discussion. This concerned a proposed re-study of the Specifications for Indicating and Cumulative Demand Register Scales, and the relative advantages and disadvantages from manufacturing, maintenance, reading and billing points of view of the so-called "Universal" scale as compared with the direct-reading scale. The former could be manufactured in quantity and would be all alike for one maker's model of meter regardless of rating, while the latter required a different register and scale for each rating. In the first case, a billing constant is required for every installation, in the second, many installations are direct reading with no billing constant. The Committee had a representation of the Customers Activities Committee state their point of view. In an attempt to find some common ground upon which to revise the present specification, a Joint Committee will be formed with members from the Customers Activities Committee and the Meter and Service Committee.

After careful consideration, the Committee agreed to invite NEMA to join in sponsoring our Specifications. These Specifications are already a product of the Committee on Metering and Service Methods of AEIC and the Meter and Service Committee of EEI. With the additional support of NEMA it is believed that there will be more widespread use of these Specifications, which will promote uniform practices with consequent benefits to all concerned.

The Committee will welcome any suggestions toward making its work more effective and further, will undertake any studies looking toward improvement and simplification of metering and service methods.

Chester C. Smith

CHESTER C. SMITH, president of the Kansas City Power & Light Company, died January 24 at the age of

MR. SMITH

58, following a cerebral hemorrhage. Mr. Smith had served as president of the Company since 1938, joining the staff in 1920 and becoming a vice-president four years later. At the time of his death Mr. Smith was a member of the board of directors of The United Light and Railways Company; The Continental Gas & Electric Corporation; and the Business Men's Assurance Company.

Mr. Smith was a native of Kansas City and was graduated from the Kansas City School of Law in 1909. He was first employed by the Public Utilities Commission of Kansas City, serving variously as an accountant and later as assistant to the president of the Metropolitan Street Railways Company in Kansas City. Following service with the Navy as an ensign in World War I, he became secretary of the Kansas City Power & Light Company in 1920.

Active in Kansas City civic circles, Mr. Smith was a director and former vice-president of the Kansas City Chamber of Commerce and participated actively in the American Royal Livestock and Horse Show, and the American Red Cross and War Chest and United Community Fund campaigns. He was a member of the Missouri Association of Public Utilities, National Association of Manufacturers, Missouri Valley Electric Association; Association of Edison Illuminating Companies; Edison Electric Institute; National Industrial Conference Board; and the American, Missouri and Kansas City Bar Associations.

PERSONALS

HARRY B. MUNSELL, vice president and secretary of the Kansas City Power and Light Company for the past year was elected president of the company at a special meeting of the Board of Directors January 27. Mr. Munsell succeeds the late Chester C. Smith. H. H. KUHN was elected ranking vice president of the Company and ROBERT A. OLSON, legal representative of The United Light and Railways Service Company, will come to Kansas City from Chicago to succeed Mr. Munsell as secretary.

At his request R. J. CLARK, former Company treasurer was relieved of active duty with the Kansas City Power & Light Company and will be succeeded by FRANK P. CLARK, who is not related. The new Kansas City president is a graduate of the University of Iowa School of Law, a native of Iowa and served as legal representative of four holding companies with headquarters in Chicago, prior to coming to Kansas City. The United Light and Railways Company is the parent company of the Kansas City property with other interests in seven Kansas, Missouri and Iowa utilities. Prior to his arrival in Kansas City, Munsell worked primarily with financial and regulatory problems under the holding company act with the Securities Exchange and Federal Power Commissions.

At 41 years of age, Mr. Munsell is the youngest president ever to head the Kansas City Power & Light Company. He is a member of the Board of Directors of The United Light and Railways Company; the Continental Gas & Electric Corporation and the Kansas City Power & Light Company.

Announcement has been made of the election of HAROLD E. DEARDORFF and JAMES M. STUART to vice presidencies in the Dayton Power & Light Co., Dayton, Ohio. Both officials will continue to administer their present duties, Mr. Deardorff as supervisor of system planning engineering and Mr. Stuart as manager of the electric division.

Mr. Deardorff has been associated with the Dayton utility since his student days at the University of Cincinnati and after taking a permanent position following graduation in 1922, he progressed steadily through the company ranks. In 1940 he was made supervisor of system planning engineering. He is a member of the American Institute of Electrical Engineers, of the electrical equipment committee of the Edison Electric Institute and of other engineering societies.

Mr. Stuart became identified with the Dayton properties in 1923. He has held the position of clerk in the line department, foreman in the underground department, assistant supervisor and supervisor of underground and in 1942 was made manager of the electric division.

BAYARD L. ENGLAND has been elected vice president-general manager of the Atlantic City Electric Company, Atlantic City, N. J., succeeding R. E. Swift, retired.

Mr. England started with the engineering department of the Atlantic City Electric Company in 1924. He was transferred to Ocean City as division manager of the central division in 1929 and returning to Atlantic City six years later, he was appointed commercial manager. He was promoted to the position of assistant general manager of the company in 1941. Mr. England became general manager of the company in April, 1946, in which capacity he still serves in addition to his recent appointment as vice president.

Mr. Swift has retired after completing 35 years of service with the Atlantic City Electric Company and other member companies of the American Gas & Electric system.

R. B. Richardson, Operating Manager, Delaware Power & Light Company, (Wilmington, Delaware) announced the appointment of RAYMOND K. GRUBB as assistant Operating Manager —Electric, effective January 20, 1947.

Mr. Grubb is a native of Wilmington and received his education in the public schools of that city and at the University of Delaware, having received his BS Degree in Electrical Engineering there in June 1928. Mr. Grubb's first job after graduation from the University was with the local utility company as a Cadet Engineer. He was responsible for Electrolysis work within the Company from 1933 to 1939 when he was transferred to the Electrical Engineering Department as Engineering Assistant. In June of 1945 he was made Assistant Electrical Engineer in the Development Engineering Department, and in May 1946 became Assistant Superintendent of the Transmission and Distribution Department, which was his position until the present appointment was received.

ALEXANDER FRAZER has been elected General Auditor of the West Penn Power Company, a post left vacant by the retirement of Walter H. Judge.

It was also announced that O. L. K. MCKIBBEN, Supervisor of Taxes, has been appointed Assistant Controller, replacing Mr. Frazer.

Mr. Judge, who is leaving West Penn due to ill health, is returning to his native Texas to make his home in Dallas.

A graduate of Tyler Business College, he filled various positions in the Accounting Department of the St. Louis Southwestern Railway Company of Texas, advancing to Traveling Auditor. From May 1917 until he was employed by West Penn Power Company in December 1929, he was Examiner of Accounts with the Interstate Commerce Commission, Washington, D. C.

Mr. Judge came with West Penn as Assistant to the Controller. He was General Auditor in the Company's Accounting Department from April 1937 until his retirement, January 1.

Mr. Frazer, who is a graduate of Harvard University, took postgraduate work in advanced accounting and security analysis at New York and Columbia Universities, and taught accounting at N.Y.U. for two years. During his teaching period, he was employed by National Newark and Essex Bank, Newark, N. J., as statistician, specializing in the securities of public utilities.

Prior to coming with West Penn, Mr. Frazer was treasurer of the Central Vermont Public Service Corporation, and concurrently, treasurer of the Twin State Gas and Electric Corporation, both of Rutland, Vt.

After this background of accounting and financial work, Mr. Frazer came to West Penn in April 1938 as Assistant to the Controller. The following year he was made Assistant Controller, the position he held until his promotion to General Auditor.

He is a member of the National Association of Cost Accountants, National Office Management Association, and the Harvard Club of Pittsburgh.

O. L. K. McKibben, newly appointed Assistant Controller, came with West

Penn in March 1930 as Tax Accountant, and has been Supervisor of Taxes since April 1937.

Mr. McKibben is a graduate of Marietta College, and took postgraduate work at Pittsburgh School of Accountancy. A Certified Public Accountant in Pennsylvania, he has lectured on accountancy and has been on the faculty of The Robert Morris School, Pittsburgh, since 1936.

Before joining the West Penn organization, Mr. McKibben held positions with the Interstate Audit Company, Parkersburg, W. Va.; Ernst and Ernst, Pittsburgh, and Motor Accounting Company of Pittsburgh and Detroit.

He is a member of the American Institute of Accountants, and the Pittsburgh Chapter of the Pennsylvania Institute of C.P.A.'s.

W. R. PERSONS has been appointed sales manager of the Lincoln Electric Company, Cleveland, Ohio. Mr. Persons has had a broad variety of sales experience with the company.

Following a brief period in boiler shop fabrication work, he became interested in arc welding and following graduation from the Lincoln Welding School he was sent as a welding demonstrator to the company's Pittsburgh office. After some time as a sales and service man in western Pennsylvania, he became district manager at Pittsburgh in 1937. He served in that capacity until his recall to Cleveland for a special post-war planning assignment. From this assignment he was promoted to his new position.

JAMES F. STUTSMAN has been appointed assistant distribution engineer of the Columbus and Southern Ohio Electric Company, Columbus, in which capacity he will assist with the over-all operations of the distribution department. Mr. Stutsman entered the employ of the company in the distribution engineering department in 1924.

H. H. MARSH, JR., has been appointed general superintendent of substations and shops, Duquesne Light Co., Pittsburgh. Mr. Marsh succeeds R. H. ROUGHEN, who has retired after 42 years with the company. Mr. Marsh has been connected with Duquesne Light since 1922 and in recent years has been assistant general superintendent of substations and shops. Mr. Roughen entered the utility field with the old Allegheny County Light Company in 1904.

FREDERICK W. CRONE, director of the Editorial Department of Consolidated Edison Company of New York, Inc., retired on January 31, 1947, in accordance with the company's retirement age rule. HOWARD F. WEEKS, who has been assistant director of the department, has been selected to succeed him, according to an announcement by Clarence L. Law, vice president in charge of public relations.

Mr. Crone was a member of the editorial staff of the New York Tribune for fifteen years as reporter, political correspondent, and editorial writer. He left the Tribune during World War I to do publicity work for the government in Liberty Loan campaigns and the War Department Commission on Training Camp Activities, entering the field of advertising and commercial publicity after the Armistice.

For seven years he was director of the New York State Committee on Public Utility Information. He has been connected with the Consolidated Edison System since 1928, when he joined The New York Edison Company as assistant to the president. In 1933 he became director of the Editorial Department.

Mr. Weeks attended Brown University and, following some newspaper experience, in 1926 became editor of the American Gas Association Monthly. He was assistant advertising manager of the Consolidated Gas Company in 1929. He was appointed assistant director of the Editorial Department of the Edison System Companies in 1933.

He served as president of the Public Utilities Advertising Association in 1938.

H. L. DELONEY, transmission and distribution engineer of Louisiana Power & Light Company has been appointed assistant to W. T. Hess, vice president and chief engineer. Mr. Deloney succeeds R. W. BRASWELL, who has been transferred to Mississippi Power & Light Co., as operating superintendent. Following his graduation from Louisiana Tech in 1931 with a B. S. degree in electrical engineering, Mr. Deloney joined Phoenix Utility Co. and later was transferred to Louisiana Power & Light. In 1935 he was made division electrical engineer and in 1939 was named state meter supervisor and later transmission and distribution engineer.

JOSEPH A. SHERRY has been appointed director of advertising and publicity for the New Jersey Power & Light Co., Dover. For ten years advertising manager of the Washington (N.J.) *Star* and later editor and publisher of the Hackettstown *Courier-Post,* Mr. Sherry has more recently been employed in the public relations department at Picatinny Arsenal. He is succeeding C. FRED WESTIN, who has joined the advertising department of Public Service Electric & Gas Corp., Newark, N. J.

H. A. LOTT, operating engineer of Southern California Edison Co. since 1937, has been appointed chief of the division of electrical engineering. P. H. GILBERT has been named to succeed Mr. Lott. Mr. Lott's Edison career dates from 1926. After holding several operating positions, he was appointed chief dispatcher, assuming the position of operating engineer almost 10 years ago. Mr. Gilbert's company service began in 1917, when he joined the Pacific Light & Power Corp. at Big Creek as an assistant operator, subsequently transferring to Edison. He was appointed production engineer in 1942 and production engineer this year.

Organization changes in Detroit Edison's production department have been announced by Walker L. Cisler, chief engineer of power plants, and are as follows: GEORGE A. PORTER, as assistant chief engineer of power plants, succeeding WALTER D. DRYSDALE, who retires after 42 years of service with the company. Mr. Porter, a Cornell University graduate, has been with the company since 1925 in the research, construction and production departments. He was maintenance and assistant superintendent at the Delray Power plant in 1942 and more recently engineer production-personnel.

ROBERT M. VANDUZER, JR., has been appointed operating engineer of power plants.

VIRGINIUS F. BROWN has been appointed mechanical maintenance engineer of power plants.

HENRY E. MACOMBER has been appointed mechanical engineer of power plants responsible for following new construction.

WILLIAM W. BROWN is appointed engineer production-projects to assist Mr. Macomber in this work.

FRANK NITZBERG is appointed personnel assistant to chief engineer of power plants.

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Edison Electric Institute Bulletin (Monthly)	2.00	2.00
Rural Electrification Bulletin (5 issues yearly)		1.00

Personals

(*Continued from page 61*)

WILLIAM A. HIRT's title becomes engineer-production, load scheduling, and he continues in charge of load allocation to power plants.

Other staff members of the production department include, W. A. CARTER, technical engineer of power plants; GEORGE A. CHATEL, engineer production-statistical-clerical; AARON N. SIMMONS, electrical engineer of power plants.

Advantages of 11-13-Kv Distribution

(*Continued from page 44*)

"relay out" more positively than circuits at 4 kv. No company has reported evidence of reduced safety. One company reported that linemen considered it safer to work the high-voltage primary with "hot sticks" than the lower voltage with rubber goods. One company that uses special short-handled live-line tools concludes that the over-all time taken for this type of line work actually is less with "hot sticks." After a period at the higher voltage no need for increase in line crews has been reported.

Joint use of poles at the higher voltage is entirely practical. It is founded on good engineering in:

Rapid relaying of power circuits for immediate de-energizing of a fault.

Adequate common grounding of power and communication circuits.

Summary

To summarize briefly, residential and commercial electric power loads are moving into a new zone of magnitude, with promise of even more rapid growth in years reasonably close at hand. As a primary voltage for this distribution duty 4 kv has passed optimum suitability and the era of higher primary distribution voltages centering in the 12-13.2 kv class is at hand. While this does not call for the retirement of present facilities before economic life is spent, it does call for sound engineering, thinking and ingenuity in planning facilities that, adequately and economically, will measure up to the needs.

CONVENTIONS AND MEETINGS

1947

MARCH

2-5 American Society of Mechanical Engineers, Spring Meeting, Tulsa, Okla.
3-5 National Electrical Manufacturers Association, Edgewater Beach Hotel, Chicago, Ill.
3-5 Canadian Electrical Association, Western Conference, Vancouver, B. C.
20-21 Oklahoma Utilities Association, Annual Convention, Tulsa Hotel, Tulsa, Okla.
20-21 Southeastern Electric Exchange, Spring Conference Engineering and Operation Section, Sheraton Bon Air Hotel, Augusta, Ga.
March 31-April 2 Midwest Power Conference, Palmer House, Chicago, Ill.
March 31-April 3 Thirteenth Annual Sales Conference, EEI, Edgewater Beach Hotel, Chicago, Ill.

APRIL

3-5 Southeastern Electric Exchange, Annual Conference, The Vinoy Park Hotel, St. Petersburg, Fla.
7-9 AGA-EEI National Accounting Conference, Hotel Statler, Buffalo, N. Y.
7-10 National Association of Corrosion Engineers, Annual Conference and Exhibit, Palmer House, Chicago, Ill.
9-10 Northwest Electric Light and Power Association, Engineering and Operation Section, Multnomah Hotel, Portland, Ore.
14-15 AGA-EEI Public Utility Fleet Operators' Conference, Hotel Cleveland, Cleveland, Ohio
15-16 Indiana Electric Association, Annual Young Men's Utility Conference, IPALCO Hall, Indianapolis, Ind.
16-18 Missouri Valley Electric Association, Engineering Conference, Hotel Continental, Kansas City, Mo.
17-18 Southeastern Electric Exchange, Accounting Section, The McFadden Deauville Hall, Miami, Fla.
23-26 American Society of Civil Engineers, Spring Meeting, Phoenix, Ariz.
24-25 Pennsylvania Electric Association, Systems Operation Committee, Buffalo, N. Y.
28-29 Electrical Equipment Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-29 Transmission and Distribution Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-29 Hydraulic Power Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-May Chamber of Commerce of the U. S. A., Washington, D. C.
29-30 Accident Prevention Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.

MAY

2-4 Westinghouse Agent-Jobbers Association, Hotel Claridge, Atlantic City, N. J.
4-8 National Electrical Wholesalers Association, Hotel Traymore, Atlantic City, N. J.
7-8 Northwest Electric Light and Power Association, Business Development Section, Olympic Hotel, Seattle, Wash.
13-14 Southeastern Electric Exchange, Home Service Conference, Thomas Jefferson Hotel, Birmingham, Ala.
26-29 National Fire Protection Association, Palmer House, Chicago, Ill.
27-29 National Association of Purchasing Agents, Chicago, Ill.

JUNE

2-5 EDISON ELECTRIC INSTITUTE, Annual Meeting, Atlantic City, N. J.
16-19 National District Heating Association, The Ambassador Hotel, Atlantic City, N. J.
18-20 Canadian Electrical Association, 57th Annual Convention, Algonquin Hotel, St. Andrews, N. B.
22-26 National Electrical Manufacturers Association, The Homestead, Hot Springs, Va.

JULY

16-18 American Society of Civil Engineers, Duluth, Minn.

SEPTEMBER

5-11 National Electrical Contractors Association, San Francisco, Cal.
10-15 Illuminating Engineering Society, Roosevelt Hotel, New Orleans, La.
17-19 Indiana Electric Association, French Lick Springs Hotel, French Lick, Indiana
25-26 Southeastern Electric Exchange, Fall Conference Engineering and Operation Section, Henry Grady Hotel, Atlanta, Ga.

OCTOBER

6-10 35th National Safety Congress and Exposition, Chicago, Ill.
15-18 American Society of Civil Engineers, Fall Meeting, New Orleans, La.
29-31 Southeastern Electric Exchange, General Sales Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

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